

THE BRITISH JOURNAL OF CHILDREN'S DISEASES.

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APPOINTED BY THE MEDICAL STAFFS OF THE CHILDREN'S HOSPITALS.

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The Practical Journal on Children's Diseases.

ARCHIVES OF PEDIATRICS

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Original Articles.

SOME REMARKS ON THE DIAGNOSIS AND
TREATMENT OF CONGENITAL SYPHILIS.*

By C. F. MARSHALL, M.D., F.R.C.S.

As the subject of this paper is rather comprehensive, I propose to confine myself to a consideration of some of the more important points, especially those in which the diagnosis is doubtful, controversial or somewhat ignored.

Congenital syphilis appears to have changed in type of late, possibly owing to improved treatment, possibly owing to changes in the strain of the spirochæte or to other factors at present unknown.

We do not so often see the "wizened old man" with *café-au-lait* complexion described by Trousseau and Jenner. In fact, the majority of congenital syphilitics are apparently healthy at birth and do not show symptoms till a few weeks old. On the other hand, there is an apparent or real increase in visceral and nervous syphilis.

First, a few words concerning early diagnosis. We should bear in mind that many infants suffer from coryza and rashes on the buttocks without being necessarily subjects of congenital syphilis. The most important of the early diagnostic signs are: desquamative eruptions on the palms and soles, enlargement of the liver and spleen, epiphysitis, fissures about the mouth, and orchitis.

We will now discuss some of the more important questions

* A Paper read before the Eastbourne Medical Society on March the 29th, 1921.

concerning the ætiological factor of congenital syphilis in affections of the different organs of the body, and the chief points in differential diagnosis.

THE TEETH.

Congenital syphilis may affect either the first or the second dentition, more commonly the latter. It causes arrested development and malformations, giving rise to the so-called erosions, which are due to arrested development of the enamel and exposure of the dentine.

The best-known type is that described by Hutchinson, with crescentic notching of the free border, most often seen in the upper median incisors, but sometimes in the lower incisors. In its early stage the notch is filled with dental vegetations, the remains of atrophic changes during development: as these are worn away the typical notch is produced. In later years the notch becomes worn horizontal and loses its characteristic appearance.

Hutchinson's teeth are pathognomonic of congenital syphilis, but as they are not very common, and when present are usually associated with other characteristic signs, such as keratitis and saddle nose, they are not often helpful in the diagnosis of doubtful cases.

The question then presents itself whether any other dental abnormalities are diagnostic of congenital syphilis. The chief of these are (1) the dome-shaped first molars, described by Moon, due to suppression of the central tubercle in each cusp and falling together of the lateral ones; (2) pitted erosions, forming greyish-white dots; (3) transverse furrows; (4) microdontism; (5) premature caries; (6) irregular implantation; (7) wide interspacing; (8) amorphism, or deviation from type; (9) white transverse lines.

Now some of these erosions are seen in animals, especially the dog, in which they are said to be caused by distemper. In the human subject it is also probable that other infections than syphilis contracted by the mother during pregnancy may affect the development of the teeth in the foetus. Hence, syphilis is not the only cause of these malformations.

With regard to premature caries, the milk teeth of syphilitic infants are sometimes affected with caries of their necks, so that the crowns drop off. This condition, which chiefly affects the upper incisors, is suggestive of congenital syphilis but not pathognomonic.

Another affection of the milk teeth in congenital syphilis described

by Hutchinson is suppuration of the sacs, resulting in exfoliation of the crowns. This is a rare condition.

Wide interspacing of the teeth and microdontism are regarded by several authorities as characteristic of congenital syphilis.

Transverse furrows and pitted erosions cannot be regarded as characteristic of congenital syphilis. Hutchinson attributed them to the results of stomatitis in infancy, often due to the mercury given for treatment. Mercury, he says, causes defective formation of enamel, exposing the dentine in the form of pits and erosions. Mercury, he remarks, tends to prevent the special malformations due to syphilis, but adds others of its own, and the two are often combined. In any case, such an effect on the milk teeth is a lesser evil than the omission of mercurial treatment.

A form of pitted erosion, which Hutchinson calls "craggy teeth," is regarded by him as a family peculiarity. The same probably applies to white transverse lines.

To sum up, I think we must conclude that the typical Hutchinson's teeth are the only ones which are absolutely diagnostic of congenital syphilis. Next to these in importance come Moon's dome-shaped molars, microdontism, wide interspacing, and exfoliation of the crowns of the milk teeth in infants. But these are not sufficient for diagnosis in the absence of other signs. They are suggestive but not conclusive. It must also be remembered that these dental abnormalities only occur in the minority of cases.

INTERSTITIAL KERATITIS.

Interstitial keratitis is not absolutely diagnostic of congenital syphilis as it occasionally occurs in acquired syphilis. In this case it differs nearly always in being less severe and limited to one eye only.

It may be mentioned that this affection reacts better to mercury than to salvarsan.

The prognosis as regards the cornea is good with proper treatment, but it depends on the presence or absence of concomitant choroiditis.

DEAFNESS.

Congenital syphilis is a common cause of deafness and deaf-mutism. In early congenital syphilis deafness may result from otitis media following Eustachian extension from rhinitis, or snuffles. But the characteristic syphilitic deafness, first described by Hutchinson, occurs in late congenital syphilis and is due to

hyperplastic labyrinthitis. It is usually bilateral and often rapid in onset. It is very resistant to treatment, but Hutchinson reported a case which was cured by mercury.

THE BONES.

Early signs.—First of all we must consider *Parrot's nodes*, forming the natiform or hot cross bun shaped skull, and *cranio-tabes*, for there has been a difference of opinion as to whether these conditions are caused by rickets or congenital syphilis. Parrot himself looked upon rickets as a symptom of congenital syphilis, but this idea is of course untenable, although we may admit that congenital syphilis predisposes to rickets.

Sir T. Barlow pointed out the connection between *cranio-tabes* and congenital syphilis. It is probable that both Parrot's nodes and *cranio-tabes* are due to congenital syphilis, but as the latter is a predisposing cause of rickets, they are often found in rickety children.

Before leaving the subject of rickets, the pseudo-rachitic deformity of the leg in late congenital syphilis, due to osteoperiosteitis of the tibia, requires a passing mention, although it is easily distinguished from rickets.

Two other bone lesions require attention: viz. *epiphysitis*, or osteochondritis, and *dactylitis*; the former because of its diagnostic importance, the latter because of the difficulty in diagnosis from tuberculous dactylitis.

The epiphyses, which are in active growth during the later months of foetal life and the early months of extra-uterine life, are especially liable to be attacked by syphilis. Hence the early appearance of epiphysitis, either before birth or soon after. The upper limbs are more often affected, and the resulting pain causes immobility of the limb—a condition named by Parrot "*syphilitic pseudo-paralysis*."

Epiphysitis is one of the most important of the early signs of congenital syphilis, and loss of power in an infant under six months old (apart from trauma) is an almost certain sign. It cannot be mistaken for any other condition. The deformity of the epiphyses due to rickets occurs later, usually after the sixth month.

Sometimes suppuration occurs with separation of the epiphyses.

Syphilitic dactylitis appears to have been first mentioned by the late R. W. Taylor of New York, who described it as occurring in both acquired and congenital syphilis. It may be single or multiple, bilateral or unilateral, and may affect the phalanges or metacarpals.

Tuberculous dactylitis differs in its greater tendency to supuration and infiltration of the soft parts, and in affecting the terminal phalanges, which are seldom involved in the syphilitic form. Syphilitic dactylitis also usually occurs at an earlier age. Some cases of syphilitic dactylitis, however, suppurate and may be almost impossible to distinguish from tuberculous.

In all cases antisyphilitic treatment should be tried, as the Wassermann reaction may be negative. Findlay reported a case in an infant aged 13 months which reacted to salvarsan, although the Wassermann reaction was negative both in the child and the mother.

Later signs.—An important point in diagnosis is the distinction between the bone and joint lesions of late congenital syphilis and those of tuberculosis.

As long ago as 1886 Fournier protested against the wholesale diagnosis of all bone lesions in children as "scrofulous," yet this tendency still persists, substituting the term "tubercle" for scrofula. Cases diagnosed as tuberculous and submitted to surgical procedures not infrequently heal under antisyphilitic treatment. I can remember many such cases in former years which failed to improve under surgical treatment, and which were probably syphilitic. Roberts, of New York, has recently published some interesting observations dealing with 200 cases of bone and joint disease, which, while showing the signs usually attributed to tuberculosis, were undoubtedly syphilitic. No less than 51 of these cases had been diagnosed and treated for tuberculosis.

The diagnosis of these cases is often difficult, and depends chiefly on the history, the presence of other signs of congenital syphilis or tubercle. Some assistance is given by X-ray examination, as the tuberculous process is that of rarefying osteitis, while the syphilitic process is more one of osteoperiosteitis, but the differentiation is often difficult and the interpretation is often inconclusive. The Wassermann reaction is also of help, but is sometimes negative, even when other signs of syphilis are present. The most valuable test is the effect of antisyphilitic treatment. Indeed it is well to give this a trial in all doubtful cases of bone and joint disease in children before resorting to apparatus for immobilisation or operative procedures.

This leads us to the combination, or symbiosis, of syphilis with tuberculosis.

SYPHILIS AND TUBERCULOSIS.

The combination of syphilis and tuberculosis was recognised long ago by Ricord, who gave it the name of scrofulo-syphilis; but after

the discovery of the tubercle bacillus *scrofula* was relegated to the domain of tuberculosis, and with it not a few conditions due to congenital syphilis.

In this symbiosis of tubercle and syphilis there appears to be a hybridity of soils with a juxtaposition of lesions rather than an actual hybridity of lesions. The best example is the hybrid of lupus and syphilis, in which the syphilitic part of the lesions heals under antisyphilitic treatment while the tuberculous part remains.

It is also probable that a congenital syphilitic soil predisposes not only to tuberculosis of the skin, glands, bones and joints, but also to pulmonary tuberculosis.

This implantation of tubercle on a syphilitic soil applies much more to congenital than acquired syphilis, and accounts for the majority of cases formerly called struma or *scrofula*.

VISERAL SYPHILIS.

The diagnosis of visceral syphilis is difficult and often impossible apart from other clinical signs. The Wassermann reaction is often of assistance, although a positive reaction does not necessarily show that the lesion in question is syphilitic. The therapeutic test is of more value, but in many chronic or advanced conditions there is little or no reponse to treatment. It is important, however, to bear syphilis in mind as a possible cause of many visceral lesions.

Interstitial myocarditis may occur in infants and cause asphyxia neonatorum and sudden death. Aortitis and aneurysm have also been described. Congenital syphilis may cause a form of anæmia closely resembling splenic anæmia, and is also said to be one of the chief causes of paroxysmal hæmoglobinuria and Raynaud's disease.

Pericellular cirrhosis of the liver in infants may resemble sarcoma, and hepatic lesions, when accompanied by ascites, may be mistaken for tuberculous peritonitis.

It is important to know that congenital syphilis may cause interstitial nephritis in infants and children.

THE ENDOCRINE GLANDS.

One of the most interesting aspects of visceral syphilis is the part it plays in disease of the glands of internal secretion, or endocrine glands, a subject which has recently received much attention. Tuberculosis and syphilis appear to be the chief causes of endocrinic disease, and congenital syphilis probably takes a larger share than the acquired disease.

The suprarenal glands are the most often affected, giving rise to symptoms of Addison's disease and supra-renal insufficiency. In the *thyroid gland* the infection may result in diminished secretion with signs of myxœdema, or hypersecretion with exophthalmic goitre. In the *pituitary gland* lesions of the nervous portion appear to cause glycosuria; hypersecretion of the glandular portion is said to cause acromegaly; and diminished secretion has been alleged as a cause of osteitis deformans. Congenital syphilis affecting the *testicle and ovary*—which apart from their reproductive functions are glands of internal secretion—has been said to lead to arrested development of the sexual characters and arrest of development.

It is now generally believed that endocrine disease is not usually confined to one gland, but affects several different glands, as these are now known to be functionally interdependent, producing multi-glandular syndromes. Among the effects of this combined endocrine disease attributed to congenital syphilis are gigantism and dwarfism, cretinism and infantilism, osteomalacia and achondroplasia. As regards the treatment of endocrine syphilis little can be expected in many of the conditions, but cases of Addison's disease and glycosuria have been reported which were benefited thereby, and a case of exophthalmic goitre is said to have been cured by salvarsan. As a rule antisyphilitic treatment should be combined with ootherapy.

THE NERVOUS SYSTEM.

Congenital syphilis may cause arrest of mental development, varying in degree from deficient intelligence to idiocy. This fact, although well known to the older syphilologists, was not sufficiently appreciated till the Wassermann test was applied to such cases. Thus, Gordon found a positive Wassermann reaction in 16 per cent. of 400 patients in the Metropolitan Asylums with various forms of mental deficiency, but much higher percentages have been found by other observers (60 per cent. in 205 cases by Fraser and Watson), and when we consider that not all cases of congenital syphilis give a positive Wassermann reaction, we must admit that this is the principal cause of mental deficiency. Indeed, Sir James Crichton-Browne has gone so far as to suggest that Bolshevism may be due to the wide-spread syphilisation of the Russian race. Certainly the photographs of some revolutionary leaders are somewhat suggestive. On the other hand, congenital syphilis is not incompatible with genius. To mention one example, Beethoven,

judging from his portraits, appears to have been a congenital syphilitic, and his deafness has been attributed to this cause.

As regards the treatment of mental deficiency due to congenital syphilis, there is little hope of benefit in well-established cases, as permanent damage is done to the brain during its early stages of development.

There are several affections which require notice as regards diagnosis. The chief of these are meningitis, epilepsy, juvenile general paralysis, and tabes.

Meningitis, due to congenital syphilis, is not common. It has to be diagnosed from tuberculous and meningococcal meningitis. The Wassermann reaction is here of much assistance, being usually positive in the cerebro-spinal fluid in syphilitic meningitis, and usually negative in the other two affections. Sometimes, however, a positive reaction is obtained in cases of tuberculous and meningococcal meningitis. Two explanations for this phenomenon have been suggested: (1) the occurrence of these forms of meningitis in a syphilitic subject; (2) the technique of the test. It is said that the reacting substances in the cerebro-spinal fluid come, not only from the diseased tissues, but also from the blood, owing to increased permeability of the meninges due to the meningitis, and that this may cause a positive reaction if the fluid is unheated in the test, even in the absence of syphilis. In testing these cases, therefore, the cerebro-spinal fluid should be heated as in the blood-test.

Epilepsy.—Apart from the epileptic attacks which occur in association with other signs of cerebral syphilis, there is a form of epilepsy which is clinically indistinguishable from so-called idiopathic epilepsy. To this form Fournier gave the name of parasymphilitic epilepsy. The question naturally arises whether syphilis, or rather congenital syphilis, is a cause of idiopathic epilepsy. A positive Wassermann reaction is found in many cases of idiopathic epilepsy, and it seems reasonable to regard congenital syphilis as one of the causes of this affection, and try antisymphilitic remedies, although their beneficial effect is somewhat problematical.

Juvenile general paralysis.—According to Mott, who was the chief observer to establish the syphilitic origin of this condition, about half the cases are congenital imbeciles, and in many there is optic atrophy in infancy. He also found definite signs of congenital syphilis in half his cases, and a history of parental syphilis in the majority.

When the symptoms develop after puberty there may be grandiose delusions. When the disease is delayed till adolescence

it must be diagnosed from dementia præcox, but in this there is no Argyll Robertson pupil, and the Wassermann reaction is negative.

Juvenile tabes is rarer than juvenile general paralysis. Some cases have been recorded which were due to acquired syphilis in children.

ACQUIRED SYPHILIS IN CHILDREN.

This leads to the diagnosis between congenital and acquired syphilis. This is more difficult in infants than in older children.

Infants may be infected by syphilitic wet-nurses, by using the same bottles, spoons, etc., as syphilitic infants; or by contagion from adults by kissing. Several cases have been recorded in which the infant was infected during birth from sores on the mother's genitals, but such cases are rare, and only occur when the mother is infected late in pregnancy.

The diagnosis of these cases depends on the presence of a chancre or multiple chancres, and the history of the mother's infection. The absence of signs of congenital syphilis is inconclusive, as so many infants are born without them.

As regards the results of syphilis acquired by infants soon after birth, it is probable that it causes many of the effects generally regarded as characteristic of congenital syphilis, for the spirochaetes will gain access to organs in process of development. Fournier mentions the case of an infant, infected by a syphilitic wet-nurse, which suffered from infantilism and atrophy of the testicles. A more remarkable case is that of Welender, in which Hutchinson's teeth and keratitis developed in an infant infected at the age of three months.

The diagnosis of such cases may present great difficulty, but is important from the medico-legal point of view.

Acquired syphilis in older children is less severe and more easy to diagnose if primary and secondary lesions are present, but if the case is not seen till tertiary lesions, such as gummata, appear, it is often impossible to say whether these are congenital or acquired.

GENERAL TREATMENT OF CONGENITAL SYPHILIS.

This is ante-natal and post-natal.

Ante-natal treatment.—The influence of ante-natal treatment by treating the mother during pregnancy has of late received increasing attention, and is proved by the statistics of foetal mortality in treated and untreated cases. Whitridge Williams, of the Johns Hopkins Hospital, found that the infant mortality in 421 cases was

52 per cent. in untreated cases and only 7 per cent. in cases well treated with salvarsan and mercury.

Whether these efforts to attain the survival of those who, after all, must be regarded as the potentially unfit, is to be desired from the eugenic and economic points of view is another problem. Indeed, it is possible that ante-natal treatment, although diminishing foetal mortality, may lead to an increase in the number of cases of late congenital syphilis. However, as the general trend of society at the present day is towards the propagation of the unfit at the expense of the fit, the addition of a few more syphilitics may not make much difference.

To return to our subject. Assuming our object is to attain a diminution of infantile mortality from syphilis, it is obvious that the earlier ante-natal treatment is commenced the greater is the probability of a living child being born. It had already been shown that treatment of the mother with mercury only, both before and during pregnancy, resulted in a much higher percentage of living infants than when treatment was commenced during pregnancy only. More recently combined treatment with mercury and salvarsan, given during pregnancy only, has been found to give better results as regards the number of children born alive and free from symptoms at birth. Salvarsan appears to have little or no tendency to cause abortion when properly administered.

There are three conditions in the pregnant woman which require consideration.

(1) When she has signs of syphilis. In this case treatment is of course indicated, both for her own sake and that of the child. If she is infected after the seventh month the chances are that the infant will escape infection; but it will be exposed to the risk of contracting acquired syphilis from the mother.

(2) When she has no symptoms, but has a positive Wassermann reaction. In this case she may have been infected from the husband if he has had recent syphilis. But if there are no signs of syphilis in the husband she may have been impregnated by an intervening syphilitic genitor. This assumes the possibility of paternal or spermatic infection of the ovum and conceptional syphilis in the mother. This mode of infection, although denied by many, has much evidence to support it. In either case ante-natal treatment is indicated.

(3) When she has no symptoms and a negative reaction, but the husband has recent syphilis. In this case I do not think treatment is necessary, for it is not certain whether either she or the foetus is infected. Another test should be done later on.

Post-natal treatment.—As a general rule it is advisable to treat the infant of a known syphilitic mother after birth, whether it has a negative or a positive Wassermann reaction and whether it shows signs of congenital syphilis or not, for we know that the majority are born with no symptoms and are often negative, and that some may have visceral syphilis.

Here again it is best to give combined treatment with arsenic and mercury. Many practise intravenous injections of arsenic, using the veins of the scalp, the external jugular or the dorsal veins of the foot. Some inject into the longitudinal sinus. Others obtain equally good results with intramuscular injections. Personally I prefer intramuscular injections made up with glucose, which diminishes the pain. Necrosis of the buttock, so often mentioned as an objection to this method, is in my opinion rather a bogey. I have never seen it, and Adams, who has used intramuscular injections of galyol and glucose for several years at the Thavies Inn Clinic for pregnant syphilitic women, has never had a case. Perhaps the cases of necrosis reported are due to too bulky injections, or possibly to the mixture with creocamph, which I have seen cause large and painful nodosities.

Mercury should be given simultaneously, either in the form of grey powder or inunction, and it is important to continue mercurial treatment for a year at least.

Late congenital syphilis should be treated with arsenic, mercury or iodides, according to the conditions presenting themselves. As a rule, however, it reacts less favourably than acquired syphilis to salvarsan, and some conditions improve better under mercury and iodides.

We now come to the question of the treatment of the children of syphilitic parents in whom there are no definite signs of congenital syphilis and no history of such in infancy, but who are found to have a positive Wassermann reaction.

This is a somewhat similar problem to that of the treatment of a persistently positive Wassermann reaction in acquired syphilis and depends on the signification of the reaction. Most pathologists are of opinion that a positive Wassermann reaction always signifies the presence of active spirochaetes, but Levaditi,* one of the early pioneers in this subject, has suggested that it may be of the nature of an immunity reaction which may continue some time after cure.

Clinicians are divided on this question. Some advocate continued courses of intensive treatment with salvarsan with the object of

* See postscript.

getting a negative reaction; others hold that such treatment is unnecessary and detrimental to health.

Personally I think that such cases should be kept under observation and tested again later on, but I do not think that intensive treatment is indicated on the sole evidence of a persistently positive Wassermann reaction. There must be a limit to a patient's capacity for "606," and there is no limit to the amount indicated by some enthusiasts. As a matter of fact, the Wassermann reaction is too recent for this question to be decided, as it has been in general use little more than twelve years. We do not know how long the reaction may remain positive, nor do we yet know whether it is those cases with a persistently positive reaction which develop tabes, general paralysis and other late manifestations.

But what we do know—at any rate those who are not in their first youth—is that a multitude of patients who were treated in the pre-Wassermann days (with mercury only) developed no further symptoms, married and had healthy children. It is more than probable that many of these had a persistently positive reaction. It is very likely that the reaction has a tendency to become normal in course of time.

We also know: (1) That the reaction may remain positive in spite of prolonged treatment—for anything we know because of too much treatment; (2) that a positive reaction may become negative without further treatment.

Again, even if a positive reaction signifies active spirochætes, a negative reaction does not exclude them. Warthin found evidence of active syphilis in the post-mortem examination of many patients who had given a negative Wassermann reaction during life.

It would therefore appear unwise to depend upon the sole evidence of the Wassermann test as a guide to treatment. This, and other tests, must be taken in conjunction with clinical experience, the cultivation of which has of late been somewhat neglected.

Postscript.—Since this was written, Dr. Levaditi has informed me that he has renounced this idea, and believes that a positive reaction always signifies living spirochætes; but he admits that this is non-proven.

DIURNAL SOMNOLENCE AND NOCTURNAL WAKEFULNESS AS MANIFESTATIONS OF LETHARGIC ENCEPHALITIS.

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With comments by J. D. ROLLESTON, M.D.

SLEEPINESS occurring in the daytime to so marked a degree as to cause anxiety on the part of the parents must be regarded as uncommon, and the only disease in which I had met with this condition before 1920 had been occasionally in the early stages of tuberculous meningitis. In one case of this disease a boy was brought to the hospital because of unusual drowsiness during the daytime: he would fall asleep during meals or whilst at school. The association of slight headache, occasional vomiting and irregularity of pupils gave a clue as to the cause of the symptoms, and the subsequent course was typical of the disease. Such cases are not uncommon, nor do they present much difficulty in diagnosis. The drowsiness gradually becomes more marked and eventually will pass into the characteristic comatose state, and it is continuous both during the night and day.

The condition with which I am concerned at the present time is one of which I have seen several examples in the course of the last eighteen months. The chief feature is a remarkable degree of somnolence during the day associated with wakefulness during the night, and prior to 1920 no similar cases had come before my notice. Generally the sleepiness did not appear to be associated with any definite constitutional disturbance; in one case, however, of which a brief account follows, the onset was associated with pains in the limbs and diplopia.

CASE 1.—A schoolboy, aged 9 years. Standard II.

He was brought up by his mother on September the 29th, 1920, on account of sleepiness during the day-time. He was said to have been quite well till April, since when he had been very drowsy during the day and sleepless at night. He was able to feed himself, but often fell asleep during meals. At night he would get up and walk about the room, and could not be induced to go to sleep. There was no history of any recent febrile attack, or pains in the limbs; his previous health had been good: measles at five; no history of fits. His father and mother were healthy, and there were eight brothers and sisters, all well.

Present condition.—He was a pale, delicate-looking boy, very drowsy, and kept falling asleep during examination.

Eyes.—Pupils reacted to light and accommodation; no nystagmus, squint or ptosis. Fundi normal.

Glands.—No enlarged glands in the neck or elsewhere.

Heart, lungs and abdomen.—Natural.

Cranial nerves.—Normal.

Reflexes.—Abdominal present; knee-jerks present; plantar reflexes flexor.

Urine.—Specific gravity, 1026. No albumin or sugar.

Temperature, 98; pulse, 90; respirations, 18.

When I first saw the boy my impression was that he would prove to be a case of early tuberculous meningitis. He was admitted to the hospital, and it was soon obvious that such was not the case. During the first few days he was extremely somnolent by day: he would fall asleep during meals, and when sent out to walk in the open air he would fall asleep and drop on the ground. At night-time he would become extremely lively and wide awake, whistling or talking to himself. Large doses of bromide given in the evening did not have much effect in producing sleep till the small hours of the morning, when he would fall into an unnaturally heavy sleep.

On October the 28th lumbar puncture was performed and 6 c.c. of clear fluid withdrawn containing 6 lymphocytes per c.cm. Normal reduction of Fehling's solution; no globulin; albumin less than .01 per cent. (Aufrecht); no organisms found.

On November the 2nd the optic discs were again found to be normal.

On November the 3rd cerebro-spinal fluid 10 c.c. withdrawn and presented normal features and gave a negative Wassermann reaction. The blood also gave a negative Wassermann reaction.

The somnolent condition continued with very little variation until about November the 11th, when improvement was effected by the administration of baths—a tepid bath at 7 a.m. in the morning and a hot bath at 7.45 p.m. He steadily improved from this date, the somnolence by day diminished and he began to sleep normally at night.

The temperature from October the 4th to the 10th showed a slight and varying degree of pyrexia; it was usually 99° F. at night, but on one occasion (October the 5th) rose to 101°.

I have seen him on several occasions since his discharge from the hospital and he is now practically normal.

CASE 2.—In this case there was a definite history of a preliminary

stage accompanied by pains in the limbs and diplopia, the details of which are as follows:

A schoolboy, aged 11 years. Standard VI. Admitted to St. Bartholomew's Hospital on May the 3rd, 1920. His mother complained that he could not be roused in the daytime and did not sleep at night.

He was perfectly well until the beginning of November, 1919, when he complained of feeling cold, and on the third day was put to bed complaining of cold, pains in the knees and ankles, across the pit of the stomach and between the shoulders. He said that he saw everything double. These symptoms continued for nearly a fortnight; during this period he made a peculiar noise in his throat, which he kept up all night and part of the following day. At the end of a fortnight he got up, but he felt cold and shivered and returned to bed. He walked quite well.

Since December his condition has been as follows: He has no inclination to do anything and has to be roused and dressed in the morning. He is always inclined to go to sleep in the daytime; will fall asleep in the midst of eating or dressing; sleeps in unusual attitudes and is afraid to cross roads containing traffic. In the evening he wakes up and is quite bright, but at night cannot be got to sleep and lies awake, frequently blowing his nose. He gets up several times to pass his water and makes curious noises at night, but stops doing so when spoken to, then starts again.

Previous history good. He had pertussis, measles and bronchopneumonia at six months. He gets on well at school and is usually well-behaved and tractable. His tonsils and adenoids were removed on January the 2nd, 1920, and he slept the following night.

Present condition.—When first seen in the Children's Department he looked a healthy, well-developed boy, and no signs of organic disease were found. There was no diplopia, no obvious involvement of the cranial nerves, and the superficial and deep reflexes were normal. The remarkable feature about the case was the somnolent condition: he fell asleep repeatedly during examination; he could be roused without much difficulty but would fall asleep again almost immediately. In order to investigate the case more fully he was taken into hospital for a few days, and it was found that his temperature, pulse and respirations were normal. The urine was normal.

After a day or two he began sleeping well at night and the somnolence by day passed off. During the night, however, he made grunting and blowing noises in his sleep.

On May the 8th, at 2 a.m., he became quite rigid with his tongue curled into the right side of his mouth, and made extraordinary blowing noises. The noise ceased on being roused, and he then went to sleep. He had a similar but shorter attack during breakfast. He was not unconscious.

On May the 18th he was apparently normal except for curious noises made during his sleep.

He has been seen several times since his discharge from the hospital and appears to have completely recovered.

COMMENTS BY DR. J. D. ROLLESTON.

Nocturnal wakefulness as a sequel of lethargic encephalitis has recently formed the subject of numerous papers emanating from pædiatric and neurological clinics in Germany, Austria, Italy and Switzerland. In spite of many articles on lethargic encephalitis published by French writers I have not been able to find any reference to the condition in French medical literature, apart from an isolated case shown by Bremer at the Société de Psychiatrie of Paris on June the 17th, 1920. His patient was a boy, aged 9 years, who was admitted to hospital with typical oculo-choreo-lethargic encephalitis. A long period of lethargy was succeeded by a phase of diurnal somnolence and nocturnal restlessness, and finally by a stage of diurnal hypo-maniacal excitement and attacks of nocturnal mania. The only previous reference in British literature is by Findlay and Shiskin of Glasgow, who regard nocturnal restlessness next to the choreiform movements as the most characteristic feature of epidemic encephalitis. In the United States Happ and Blackfan, of Baltimore, record six illustrative cases in children aged from 4 to 9 years to prove that persistent insomnia is a fairly constant sequel of acute epidemic encephalitis in children.

The most important paper on the subject was written by Hofstadt of the Munich University Children's Clinic in the 'Münchener medizinische Wochenschrift' of December the 20th, 1920. His article is based on observations on twenty-one patients—twelve boys and nine girls, aged from $2\frac{1}{2}$ to 13 years, who for weeks or months were unable to get to sleep before 5 or 6 o'clock in the morning but were in a state of constant restlessness. During the day they were in a more or less normal condition. As the result of their loss of sleep the patients became pale and thin and lost as much as 2 to 6 kgrm. in weight. In five cases the disturbance of sleep occurred after an attack of lethargic or choreiform encephalitis, for which the children

had been admitted to the clinic. In nine other cases there was a history of its having followed "influenza with marked drowsiness," "influenza with choreiform movements," or "cerebral influenza," which undoubtedly indicated a recent attack of epidemic encephalitis. In the seven remaining cases there was no history of any previous disease, but the symptoms were probably the result of epidemic encephalitis, just as many cases of otitis, nephritis and adenitis are due to scarlet fever, although a history of that disease is lacking. Hofstadt remarks that a similar condition as a sequel of lethargic encephalitis had been observed in Heidelberg, Meran and Vienna.

Some months before the publication of Hofstadt's paper Pfaundler had shown a number of children at the Munich Pædiatric Society suffering from insomnia following encephalitis. This symptom had either directly succeeded the encephalitis, or developed after an interval of some weeks. None of the children at the time of the demonstration had completely recovered, although the insomnia had lasted for many weeks. An isolated case of post-encephalitic insomnia was subsequently reported by Janecke of Erfurt in a boy, aged 5 years, in whom it lasted for more than six months after the attack of encephalitis. Heliotherapy and quartz lamp treatment appeared to have a favourable effect, but only by improving the general condition.

Three cases closely resembling those described by Pfaundler, Hofstadt and Janecke were reported by Walter of the Rostock Psychiatric and Neurological Clinic. One of them occurred in a patient aged 17 years—the only case recorded up till then in which the condition had occurred above the age of childhood.

Under the name of "the noctambulic form of epidemic encephalitis" Progulski and Gröbel, of the Lemberg University Children's Clinic, describe similar cases, and remark that there was no relation between the severity of the primary attack and the subsequent insomnia. The acute stage might even be so mild as to escape notice altogether. They allude to other cases reported in Czecho-Slovakia by Brdlik.

In Switzerland cases were reported by Reh from the Geneva University Children's Clinic and by Rüttimeyer from the University Children's Clinic at Zurich. Unlike Hofstadt's cases, which at the time of publication had not shown any improvement for weeks or months, both Reh's patients had recovered, one at the end of seven months and the other after eleven months. In each case return of normal sleep set in as the result of an intercurrent disease (measles), independently of all treatment, to which Reh's cases, like Hofstadt's patients, had proved refractory.

In Italy cases have been reported by Francioni of the Bologna University Pædiatric Clinic, Roasenda of the Turin University Institute of Neuropathology, and Zalla of the Institute of Nervous and Mental Diseases at Florence. Two of Roasenda's three patients and four of Zalla's eight cases were adults aged from 16 to 50 years. Zalla noted that in the older patients the insomnia was accompanied during the day by an absolute or relative incapacity for any constant occupation and frequently by a rigidity in the patient's movements. Francioni's cases, in addition to their nocturnal wakefulness, presented during the day a number of psychical symptoms, such as excessive irritability or violence, changes in affectivity, consisting in indifference to their parents, apathy and lassitude. During the period of restlessness preceding sleep the children presented a variety of movements, some of which resembled tics or even hysterical convulsions.

The features common to all the cases hitherto described are the long duration of the nocturnal wakefulness, its association with other manifestations of epidemic encephalitis, and the inefficacy of treatment.

In many of the cases, including those of Dr. Morley Fletcher, there was no history of a characteristic attack of lethargic encephalitis, but it must be borne in mind that epidemic encephalitis, especially in children, is more liable to assume an incomplete form (*forme fruste*) than any other infection, so that the acute stage can readily escape detection.

The first of Dr. Morley Fletcher's cases appears to have been an example of the ambulatory type of lethargic encephalitis, of which several cases have been reported, especially in children. The nocturnal wakefulness in this case was a symptom, whereas in the second case, in which there was a febrile stage with diplopia, it was a sequela. The symptom presented by the second patient of peculiar grunting and blowing noises may probably be grouped with the variety of myoclonic movements occurring in epidemic encephalitis, which include hiccough, yawning, sighing, spasmodic laughter, etc., and were particularly noted in Francioni's patients.

The pathogenesis of nocturnal wakefulness following encephalitis has not yet been fully explained. Zalla suggests that it is due either to a toxin produced by the unknown virus of epidemic encephalitis, or to residual anatomical changes in definite areas of the brain.

According to Progulski and Gröbel the symptoms are primarily caused by an organic lesion, but functional factors also enter into

their causation. Francioni also attributes considerable importance to a neuropathic predisposition.

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A FATAL CASE OF EMACIATION IN A GIRL AT ABOUT THE PERIOD OF PUBERTY, WITH GENERAL VISCEROPTOSIS, HYPOTONICITY OF THE STOMACH, AND ACHYLIA GASTRICA.

By F. PARKES WEBER, M.A., M.D., F.R.C.P.Lond.

THE case that I wish to record here is a somewhat complicated one, and the diagnosis of anorexia nervosa would certainly be disputed. Thus, in regard to anorexia nervosa I will quote I. Boas, 'Diseases of the Stomach,' English-American edition, by A. Bernheim, Philadelphia, 1907, p. 625:

"Diagnosis is easy as soon as nervous symptoms are manifested;

more difficult when such is not the case or some changes are concomitant. Furthermore, the picture may be obscured by simultaneous presence of organic diseases, such as gastric atony, displacement of kidney, liver and other viscera. In all cases where the diagnosis, nervous anorexia, is to be made plausible, organic gastric affections, all of which may be accompanied by more or less marked loss of



FIG. 1.

appetite, must be excluded. Above all, for instance, we have to think of chronic gastritis."

In the present case there was certainly general visceroptosis with an atonic or hypotonic stomach, and probably a condition of achylia gastrica and so-called atrophy of the gastric glands after chronic gastritis. One could, therefore, in this case scarcely have carried out artificial feeding by the method of *gavage* (Boas, *op. cit.*, p. 627). Neither could one well have adopted Fleiner's treatment for anorexia

nervosa, as referred to by Franz Riedel, 'Diseases of the Stomach,' Nothnagel's 'Practice,' American edition, 1903, pp. 804-806 :

"Anorexia nervosa. . . . In this place we cannot, of course, discuss all those forms of anorexia that are due to organic diseases of the stomach, nor can we discuss those cases in which the patients do not eat because they know that they will suffer distress as soon



FIG. 2.

as food enters the stomach. Patients of the latter class do not suffer from loss of appetite, and do not refrain from eating because the appetite is reduced, but merely because they are afraid of the pain. . . . Fleiner recommends the introduction of water that is heated to blood-temperature into the stomach in order to distend the organ and to stretch the contracted walls of the organ."

In the present case the stomach did not need distending! How far there was any primary nervous anorexia is uncertain. The patient had certainly suffered from pain and discomfort on eating.

Now, regarding "achylia gastrica" and chronic atrophic catarrh of the stomach, I will again quote from Riedel (*op. cit.*, pp. 538-539):

"The absence of all local symptoms and all gastric disturbances is of no value from the point of view of the differential diagnosis, for all subjective and local symptoms may be absent, and frequently are absent, in subacidity and anacidity due to atrophy. . . . Primary atrophy, as a rule, develops slowly and gradually, for it represents the terminal stage of a long-lasting chronic gastritis, or



FIG. 3.

is the result of toxic gastritis." In regard to prognosis in the various classes of achylia gastrica, Riedel (*op. cit.*, p. 537) writes: "Secondary atrophy in carcinoma has the same prognosis as carcinoma itself. . . . The prognosis of the genuine primary form of achylia gastrica is more favourable; this condition may persist for many years without serious impairment of the general health, provided, of course, the motility of the stomach remains intact and the functions of the intestine remain normal."

But in the present case the motility of the stomach was certainly not intact. The patient was a girl, aged $16\frac{1}{2}$ years, when I saw

her first, on February the 27th, 1920, in consultation with Dr. R. R. W. Oram and Dr. C. E. Lakin, and it is by their kind permission that I now give an account of her condition. I was able to have various examinations carried out between February the 29th and March the 7th, 1920, in the private portion of a hospital. There was never any fever, the temperature being mostly



FIG. 4.

about 98° F.; the pulse varied between 54 and 76 per minute, and the respiration between 18 and 24 per minute. The urine was acid, and free from albumin; the specific gravity was mostly about 1010, and the daily quantity, according to the chart, was about 500 c.c. on the average. The fæces (scanty) were of brown colour and normal consistence, not fatty in appearance. A report of the estimation of fat in the fæces and a report on the urine (both by Dr. E. L. Kennaway, in December, 1919), kindly sent to me by Dr. Lakin,

showed the total fat in the fæces (fat, free fatty acid, soap) to be 9.2 per cent. (not in excess). Indican was present in the urine, but not abnormal in amount; there was no diacetic acid; the diastatic power was estimated at about 60 units (upper normal limit is 33 units). Constipation was complained of (cascara tablets taken every night); seldom any diarrhœa. The patient had a great dislike to any fatty meat.

Examination of the gastric contents after an Ewald's test-breakfast (March, 1920), showed absence of free hydrochloric acid, and the total acidity was only 12.



FIG. 5.

Röntgen-ray examination showed a condition of general visceroptosis (Dr. James Metcalfe, March, 1920). In a skiagram of the thorax the heart appeared narrow and low down—the so-called “hanging heart” (Fig. 1), a kind of “ptosis of the heart.” Skiagrams of the abdomen after a barium-meal showed, in the recumbent position, a very dilated stomach (Fig. 2); in the upright position of the body the stomach was ptosed (Fig. 3), the lowest part of the greater curvature being 10 cm. below the umbilicus (which in all the skiagrams was marked by a farthing, seen as a black circular disc in the illustrations). In its motor efficiency the stomach was imperfect, some of the barium-meal being present in the stomach

after five hours (Fig. 4). The skiagram taken after twenty-four hours (Fig. 5) showed the stomach empty, but it likewise showed marked ptosis of the transverse colon and the whole of the colon full of the barium-meal.

There had been some question of so-called lipodystrophia progressiva,* and the patient was extremely thin—"all skin and bones"—as if almost all the subcutaneous fat had disappeared (see Figs. 6 and 7); but the loss of fat differed from that seen in lipodystrophia progressiva, inasmuch as it affected the whole body and limbs (not merely the trunk and face and upper extremities, as in lipodystrophia progressiva), and had been observed in the body before it was observed in the face. I understand that later on the



FIG. 6.



FIG. 7.

general emaciation became still more marked, in fact, that it became altogether extreme, and was accompanied by increasing feebleness. In February and March, 1920, the patient was not obviously feeble in her movements and in her body or mind. She took a normal interest in everything about her. In regard to sleep, she said she used to wake up frequently during the night.

Body-weight (commencement of March, 1920), 23·7 kgm.; height, 158 cm.; circumference of thorax in expiration, 55 cm.; circumference of thorax in inspiration, 60 cm.; circumference of abdomen at umbilical level, 46 cm.; smallest circumference of abdomen, 44 cm. The abdomen was rather "sunken." The long, thin, "bony" fingers were a feature of the case. The general

* Cf. F. Parkes Weber, 'Lipodystrophia Progressiva,' London, 1918; also Weber and Gunewardene, *BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1919, xvi, pp. 89, 200.

development was somewhat infantile or retarded. She had never menstruated. There was no swelling to indicate the presence of mammary glands. There was no axillary or pubic hair. The skin was dry and rather sallow, but there was no anæmia. In some parts—for instance, in the gluteal regions—the skin had a slightly senile appearance. A blood-count (by Dr. Stanley Wyard, in December, 1919), kindly communicated to me by Dr. Lakin, gave: Erythrocytes, 5,100,000, and white cells, 4200 to the c.mm. of blood; hæmoglobin, 95 per cent.; colour-index, 0·9. Of the white cells, the polymorphonuclear leucocytes were 59·0 per cent.; large lymphocytes, 6·0 per cent.; small lymphocytes, 31·0 per cent.; hyaline cells, 1·5 per cent.; “transitional” cells, 2·5 per cent. The erythrocytes were normal in size, shape and staining.

The patient had the most extreme condition of “erythema ab igne” (reticulated erythema with pigmentation) of the front of the legs (from warming herself at the fire) that I have ever met with. Evidently she felt the cold disagreeably. By ordinary examination (of the viscera, etc.) I noted nothing else special. The brachial systolic blood-pressure was 100–116 mm. Hg. There was no suspicion of inherited syphilis.

The patient was one of a family of three children, the other two being quite healthy and normally developed (a boy, aged 12 years, and a girl, aged 10 years). The mother had had no miscarriages and had lost no children. Both mother and father looked healthy, but rather thin. There was no history of mental disease in the family. The patient’s emaciation was said to have gradually developed (noticed in the body before it was noticed in the face) during the past two years, preceded by attacks of “indigestion.” If she were to eat much she said she would have pains—“the whole of her inside would be boiling and working.” A photograph of her taken in 1914 showed a quite normal child, but a photograph in 1918 showed her with a much thinner face and with “skinny” fingers. The face in a photograph of 1916 would still have passed as normal. At school she had always taken a good place in her class. She had always been “a poor eater,” and had always been inclined to feel chilly, with a tendency to cold hands and feet. She used to be subject to chilblains on the feet and hands (not on the ears), but had not suffered in that way during the last three winters.

I suspect that the dietetic restrictions owing to the war may have played some part in initiating the digestive troubles in the present case—in a patient predisposed to suffer, owing to a “visceroptosis type” of build, and just entering on the critical period of puberty.

I never saw the patient after March 7th, 1920, but I afterwards heard that she took less and less food, and became still more emaciated. She complained of feeling sick if she ate much, and once at least she actually vomited. She died (apparently from exhaustion) on December 8th, 1920. No necropsy was obtained. It is a question whether treatment away from home (if the parents had consented), for instance, a kind of Weir-Mitchell treatment, might not have done good.

THE TREATMENT OF PROLAPSE OF THE RECTUM IN INFANCY AND CHILDHOOD BY THE INJECTION OF ALCOHOL.

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WHILE resident in Geneva during the winter of 1919-1920 and visiting the clinique of Prof. D'Espine, I was introduced to a method of dealing with prolapse of the rectum in children which I had not seen described in the text-books, and which, from conversations with surgical colleagues, would not seem to be generally known.

Prolapse of the rectum has always been admittedly a troublesome condition to treat. My experience of dispensary practice is that it is one of which both the physician and surgeon fight shy. The physician is in the habit of referring the case to the surgeon, who almost habitually returns it again to the physician for general tonic treatment before he will consider the question of operative intervention. All sorts of devices have been suggested for the malady. In the 'Lancet' of February the 5th Lockhart-Mummery advocates the obliteration of Douglas's pouch, and in a subsequent correspondence the injection of paraffin was recommended by Burgess, with the idea, I suppose, of forming a kind of permanent pessary.

In view of the simple procedure which I am about to describe, and the most excellent results which it has produced in my hands during the last eight or nine months, I am inclined to consider such an operation as the above; as well as many of those described in our text-books, *e.g.* cauterisation of the bowel, taking in a reef in the sphincter, etc., as quite unwarranted, at least in the case of the child.

The method which I saw practised in Geneva was the injection of alcohol into the submucous tissues on either side of the rectum. As the operation must be performed under an anæsthetic the patient is prepared in the usual way by administering a purgative, and, if necessary, complete clearing out of the bowel by means of an enema. The perinæum is cleaned with methylated ether and disinfected with iodine. With the finger in the rectum, so that one is able to gauge the position of the point of the needle, 1·5 c.c. of absolute alcohol are injected on either side at a depth of about 3 in. The needle, an ordinary exploring needle, with syringe containing the necessary amount of alcohol attached, is introduced about $\frac{1}{4}$ in. from the anal margin, and passed along the side of the bowel a distance of $2\frac{1}{2}$ to 3 in., where the alcohol is injected. This is done on either side. The punctures are sealed with collodion, a fairly large pad applied, and the buttocks firmly strapped together. Instructions are given that the child must not be allowed to sit up to defæcate, and the motions are passed along the side of the pad while lying in bed. Fresh dressings are applied daily for seven to ten days, by which time it is usually found safe to discard them.

During the past nine months I have treated some twenty-two children between the ages of five months and seven years suffering from different degrees of prolapse of varying duration; in some cases the prolapse had been of several years' duration. In the majority of the cases the prolapse was intermittent and only occurred when the bowels moved, but in all required manual reduction. In several of the children, however, the prolapse was constant, and in one case had been persistently down for a period of nineteen months. In this latter case the motions were always diarrhœal in character, and strapping of the buttocks, with the child lying on its face, had been practised for long periods without any benefit resulting.

In practically every case a complete cure has been obtained. In several the prolapse returned, requiring a second injection, and in one child a third injection was necessary before a cure was obtained. In one case the prolapse was apparently due to the presence of a small polypus, which was removed at the same time as the second injection of alcohol was given.

It is usually recommended that if diarrhœa be present this should receive attention in the first place. As a result, however, of my recent experience I am inclined to consider it absolutely futile to attempt to cure the diarrhœa before the prolapse. It would seem that it is the prolapse which keeps up the diarrhœa and not *vice versa*. This was so at least in many of the cases. In the child

previously referred to in whom the prolapse had been down for nineteen months the motions were constantly loose, whereas immediately after the cure of the prolapse the diarrhœa ceased, the motions becoming quite normal, and the child commenced, for the first time, to increase in weight. The occurrence of diarrhœa is

PROLAPSE CASES.

No.	Name.	Age.	Duration of prolapse.	Date of operation.	Date last seen.	Results.
1	T. M—, girl	10 mths.	? 2 mths.	5:5:'20	29:1:'21	Down once (during whooping-cough).
2	M. C—, girl	1 yr. 9 mths.	1 yr. 7 mths.	5:5:'20 11:9:'20	28:1:'21	Down once since last injection.
3	M. D—, girl	5 mths.	5 days.	7:8:'20	5:2:'21	No return.
4	M. T—, girl	3 yrs.	18 mths.	26:8:'20	5:3:'21	Down once with severe straining.
5	M. M—, boy	1 yr. 11 mths.	1 mth.	31:8:'20	29:1:'21	No return.
6	J. M—, boy	1 yr. 8 mths.	2½ mths.	20:9:'20	24:12:'20	Partially down since (29:9:'20).
7	M. T—, girl	2 yrs. 5 mths.	3 weeks.	29:9:'20 2:10:'20 20:10:'20	24:12:'20	Not down after last injection.
8	R. O—, girl	4 yrs.	2 yrs.	2:10:'20	29:1:'21	No return.
9	N. D—, girl	2 yrs.	5 mths.	6:10:'20	29:1:'21	"
10	A. F—, boy	3 yrs.	1½ yrs.	16:10:'20 2:2:'21	4:3:'21	Prolapse returned after first injection. Polypus removed and came down once since.
11	R. S—, boy	5½ yrs.	Since infancy	20:10:'20	29:1:'21	No return.
12	E. N—, girl	2½ yrs.	"	20:10:'20	29:1:'21	"
13	M. A—, girl	5 mths.	Constantly down for 1 week to extent of 3 or 4 in.	26:10:'20	3:11:'20	"
14	R. P—, boy	2½ yrs.	3 mths.	27:10:'20	5:2:'21	"
15	M. R—, girl	3 yrs.	1 yr.	10:11:'20	11:2:'21	"
16	S. M—, girl	3 yrs.	3 weeks.	24:11:'20	15:12:'20	"
17	R. H—, boy	1 yr. 6 mths.	2 mths.	1:12:'20	5:2:'21	"
18	M. C—, girl	13 mths.	2 mths.	15:12:'20	5:2:'21	"
19	L. H—, boy	3 yrs. 1 mth.	1 yr.	15:1:'21	1:2:'21	"
20	L. F—, girl	2 yrs. 8 mths.	2 mths.	26:1:'21	12:3:'21	"
21	W. C—, boy	3 yrs. 5 mths.	1 yr.	5:2:'21	13:2:'21	"
22	C. K—, girl	2½ yrs.	3 weeks.	15:2:'21	12:3:'21	"

quite understandable when one recollects that ulceration with considerable consequent irritation not infrequently results from injury to the prolapsed bowel.

There are two factors which, in my opinion, are responsible for the cure by this method of treatment. It would seem likely that at the seat of the injection there results a certain amount of irritation, with the formation of fibrous tissue and a probable fixing of the

bowel-wall to the tissues of the pelvic cavity. I have made many examinations *per rectum* at varying periods after the injection to see if one could detect any evidence of thickening, but so far as I can judge no induration or stenosis of the bowel results. The other factor which, I think, plays a part in the cure is a return of tone to the sphincter. In all cases of prolapse the tone of the sphincter is much impaired, amounting to a paresis in the intermittent cases and to a complete paralysis in those cases where the bowel is constantly prolapsed, due to the stretching influence of the protruding mass of rectal tissue. By reduction of the prolapse the strain is removed from the muscle, which gradually contracts and regains its tone and power—a point which, to my mind, materially helps in consolidating the cure. In my experience the sphincter has quite regained its tone within a matter of ten days. In this connection one is very much reminded of the newer methods of treating infantile paralysis by avoiding all stretching of the affected muscles.

Details of all the cases treated are given in the table on p. 85.

A CASE OF DIPHTHERIA OF THE PENIS, WITH PARALYTIC SEQUELÆ.

By G. COCHRANE, M.A., M.B., Ch.B.Glas.,

Assistant Medical Officer, North-Eastern Fever Hospital, London.

It is universally acknowledged that diphtheria of the throat or nose not uncommonly gives rise to secondary infection of the genitals, but true "primary" infection of the penis seems to be distinctly rare. The following case, therefore, may be of interest, inasmuch as the penis seems primarily and alone to have been affected, and post-diphtheritic paralysis of a severe type developed, as though from an acute faucial attack.

A boy, aged $3\frac{6}{12}$ years, was admitted to the North-Eastern Fever Hospital, Tottenham, on October the 22nd, 1920, suffering from "diphtheria of penis."

The source of infection could not be traced. The patient was an only child; the parents enjoyed good health, and no cases at the same time were found in the hospital from which he was admitted.

The previous history showed that the child, at the age of five weeks, had been taken to Hampstead Hospital for "stoppage of the bowels." There was then discovered the need for circumcision, which was

performed a week later. The wound healed very slowly but completely. The child thereafter enjoyed good health until he was $3\frac{5}{12}$ years old.

On October the 4th, 1921, he was seized with sickness, vomiting, and pain in the abdomen. Acute appendicitis was diagnosed, and an operation performed at the Hampstead General Hospital on October the 6th, 1921. An abscess was found, which was drained.

October the 7th: The penis became slightly puffy, and this puffiness increased daily till the 12th.

October the 12th: An incision was made, but without any appreciable benefit.

October the 16th: Several incisions were made in penis.

October the 18th: General condition seemed bad. Abdominal wound discharged freely. The penis was swollen and red.

October the 21st: Culture from penis revealed presence of diphtheria bacilli.

October the 22nd: Child removed to North-Eastern Fever Hospital.

On admission the penis was inflamed and cedematous. The glans and corona were completely covered with a large greyish membrane. The scrotum was red and swollen, and over the root of the penis was a zone of tenderness and redness. The inguinal glands were slightly enlarged. The throat and nose appeared healthy. The abdominal wound was angry, foul and malodorous. Cultures were taken from the throat, nose, abdominal wound and penis.

October the 23rd: After twenty-four hours' growth cultures from the throat, nose and wound were negative, and from the penis positive for K.L.B. 18,000 units of antitoxin were given.

The child seemed profoundly ill and thoroughly "toxic." The tip of the penis presented a large sloughing mass. The throat appeared normal. The heart-sounds were pure and regular, both in force and rhythm.

October the 24th: The membrane began to separate from the glans, but the penis itself seemed more swollen and inflamed. 15,000 units of antitoxin were given.

The abdominal wound continued to discharge, and the edges were angry and inflamed. Cultures of the throat, wound and nose negative.

October the 25th: Cultures of the throat, nose and wound negative. Child's condition same.

October the 26th: Abdominal wound looked cleaner. Penis and scrotum remained very inflamed, but swelling subsiding.

October the 30th: Slough separated from glans and corona.

November the 9th: Granulations well formed over penis. Pulse reported irregular. Heart-sounds showed irregularity in force and rhythm.

November the 16th: Child became "nasal" and had some difficulty in drinking fluids. Squint of left eye.

November the 17th: Considerable difficulty in drinking—spluttering. Voice more nasal.

November the 21st: There appeared to be an accumulation of mucus secretion in the pharynx. Abdomen moved only very slightly with respiration. Colour poor. Heart-sounds distant, feeble, and markedly irregular.

November the 26th: Less mucus in throat. Heart's action less rapid and more regular.

December the 4th: Abdomen moved freely. Voice less nasal. Palate moved well, and child swallowed more comfortably.

December the 11th: Only very slight coughing on drinking. Abdominal wound clean. Very little discharge. Healing.

December the 18th: Heart quite regular. No difficulty in drinking. Voice only slightly nasal.

December the 29th: Abdominal wound almost healed. Penis now quite healthy. Very slight glairy discharge from meatus. No nasal voice. Squint disappeared. Cultures (twenty-four hours' growth) from throat, nose, and wound negative and from penis positive.

January the 12th, 1921: Child very well, but unable to walk. Three successive cultures from penis proved negative.

From this time onward there was uninterrupted progress, and the child was discharged well on February the 19th.

REMARKS.

The question might be asked whether this constituted a true primary diphtheria of the penis, or a "wound diphtheria" following on the incisions made for the local œdema. In reply I must state that every personal source of infection was investigated—ears, eyes, nose, throat, abdominal wound—and at no time could diphtheria bacilli be found, except from the organ itself. Moreover, what was then the cause of the œdema if not the diphtheritic process? Again, the extensive yet typical membrane was noteworthy.

Ker cites only one primary case, and that after a circumcision. In this instance the child had been circumcised three years previously.

Further, it would appear that paralysis of a severe type may follow diphtheria of the genital organs, even with comparatively large doses of antitoxin, due allowance being made for the day of disease in the administration.

I am indebted to the Medical Superintendent, Dr. Thomson, for permission to publish the notes on this case, and also to the Hampstead General Hospital for the history prior to admission to the North-Eastern Hospital.

EMPHYEMA OF THE MAXILLARY ANTRUM IN AN INFANT.

By E. E. HUGHES, Ch.M., F.R.C.S.,
Visiting Surgeon, Manchester Children's Hospital.

A MALE baby, aged 3 weeks, was brought to the Manchester Children's Hospital on account of a swelling on the left side of the face.

History.—The child was delivered by instruments, and was a vertex presentation. The present condition, which had come on gradually, probably had its origin in birth injury.

Condition on admission.—There was a marked swelling, with redness and œdema of the cheek and lower eyelid on the left side. Over the centre of the superior maxilla there was a sense of fluctuation and egg-shell crackling. Other signs included profuse left-sided nasal discharge, proptosis and slight epiphora, unilateral bulging of the palate, and a discharge of foul pus into the oral cavity through the upper alveolus on the left side.

Treatment.—An incision was made into the upper alveolus to widen the exit for the pus, a large quantity of which was evacuated on pressure over the affected cheek. A couple of unerupted teeth were unavoidably removed during this procedure.

After-treatment.—The abscess-cavity was daily irrigated through the alveolus and the discharge rapidly lessened. At the end of three weeks the child was sent home completely recovered.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, November the 26th, 1920.

The President, Dr. F. LANGMEAD, in the Chair.

Case for Diagnosis.—Dr. E. A. COCKAYNE showed a boy, aged $4\frac{3}{4}$ years, 37 in. in height. Sallow complexion. Scanty dry fair hair. Skin lacked firmness, leucoderma present; nails a little thin. He had only seven milk teeth, two incisors, four canines, all broad at the base and tapering to a sharp point, and one molar with sharp points on the crown. Wassermann reaction negative.

Two Cases of Diabetes Mellitus of an Unusual Type.—Dr. GEORGE GRAHAM.—CASE 1.—Girl, aged 11 years.

History of present illness.—In January, 1916, began to be thirsty and to lose weight; pruritus vulvæ gradually developed. In May, 1916, glycosuria was detected, and she had been in hospital ever since. The sugar excreted on admission was about 90 grm. per day. It disappeared after two starvation days, and her sugar tolerance seemed to be about 50 grm. During the next three years treatment was always complicated by her skill in obtaining carbohydrate food from the other children. Height on admission not known; weight was 2 st. 3 lb. June, 1918, weight 2 st. 10 lb. July, 1919: Weight 2 st. 12 lb. (19 lb. below Galton's average); height, $43\frac{1}{2}$ in. ($6\frac{1}{2}$ in. below Galton's average). January, 1920, weight 2 st. $11\frac{1}{2}$ lb. (22 lb. below Galton's average); height $44\frac{1}{2}$ in. ($6\frac{1}{2}$ in. below Galton's average). October, 1920, height 47 in.

By January, 1920, she had become a well-proportioned child. Colour of skin a peculiar yellow varying in intensity. Pituitary fossa 8 mm. long and 6 mm. deep. Long bones showed transverse striation at ends.

The effect of a dose of 15 grm. of sugar was tested in January, 1920. The fasting value was 0.16 grm. per cent., and at the end of one hour it was 0.29 grm.; after two hours, 0.25 grm.; after three hours, 0.225 grm. A trace of sugar was passed in the first two hours and none in the third hour.

In October, 1920, she was very well, and very rarely passed sugar, as a starvation day followed automatically each time she stole bread. Her sugar tolerance was about 70 grm. on a diet containing 68 grm. of fat, 38 grm. of protein, 70 grm. of sugar, and 1100 calories. She had to have a starvation every twenty-six days.

CASE 2.—Girl, aged 9 years.

History of present illness.—Began to be thirsty in October, 1918, and developed pruritus vulvæ. Sugar was discovered, and she was admitted to the hospital. The total sugar output was about 60 grm. per day. She had been treated with periods of starvation and egg and vegetable days, but was exceedingly difficult to keep sugar-free, three eggs, 300 grm. of green vegetables and 25 grm. of butter—that is 35 grm. of fat, 5 grm. of protein, 12 grm. of sugar and 400 calories—being all that she could eat without

passing sugar. She was small and well proportioned, with a peculiar yellow tinge of the skin which varied from time to time.

October, 1919: Height, $38\frac{1}{2}$ in. (7 in. below Galton's average); weight 30 lb. (20 lb. below Galton's average). She had not grown during the last year and was of the same weight. Pituitary fossa was $8\frac{1}{2}$ mm. long and 7 mm. in depth. Long bones with transverse striation at lower ends.

The sugar tolerance—10 grm. of sugar on July the 13th, 1920. Fasting value of blood-sugar, 0.13; after one hour 9.25, and after two hours 9.3. Amount of sugar excreted very small: 0.1 grm. in first hour, 0.15 grm. in second hour and 0.2 grm. in third hour.

She had now been out of hospital three months and did not appear much worse, but she usually passed sugar. She had a starvation day each week.

Recurrent Facial Paralysis.—Dr. F. LANGMEAD.—Her mother stated that the girl had had three attacks of facial paralysis, always first noticed in the morning. The first, when she was a baby, lasted a few days and then cleared up completely. The second, about a year ago, equally transient. The present had lasted several weeks. There was no evidence of ear disease.

Osteogenesis Imperfecta.—Dr. F. LANGMEAD also showed a boy, aged $6\frac{1}{2}$ years. Birth easy, no abnormalities noted. Twin, illegitimate, and fed for first two years on Nestlé's milk and Neave's food. Nothing abnormal was noted by grandmother until he failed to begin walking or moving about at usual time. Always languid, pale and irritable, and failed to thrive or grow. Up to now he had never walked, and when sat up had always wanted to lie down, crying and seemingly in pain. Had had frequent "colds"; no other illness noticed.

On admission to hospital very pale, deformed and undersized; total length only 29 in. Eyes prominent and face looking pained and careworn. Head large, square, and bossed, measuring 19 in. in circumference, or about two-thirds of the body length. Signs of rickets pronounced. Chest distinctly rachitic, with ribs steeply beaded. Much kyphosis and some scoliosis. Epiphyses excessively enlarged and bones curved. General muscular hypotonia with laxity of joints present. This was well seen in metacarpophalangeal joints, where considerable hyperextension was possible. Fractures of left humerus and in both femora, and greenstick fracture of left clavicle. He cried if manipulated, and was only comfortable when lying down.

Blood picture.—Red corpuscles, 2,827,000; hæmoglobin, 48 per cent.; colour index, 0.89; white cells, 6800; of the latter 43 per cent. are polymorphs, 42 per cent. small lymphocytes, 12 per cent. large lymphocytes, 3 per cent. large mononuclears. Much polychromatophilia and slight poikilocytosis. Skiagrams showed clear-cut fractures of long bones surrounded by a large amount of callus at points where bending was greatest.

Malformation of Face, Ear, Eye and Hand.—Mr. B. WHITCHURCH HOWELL (for Dr. DRU DRURY) showed photographs of a male infant, who was the third of three male children, born at full term. The parents and brothers were in all respects healthy. The mother's family yielded an uncle of the patient, of defective mentality, and a doubtful account of an aunt with "lumps on the back of the head," supposed to resemble the ear of the patient. No further indications of "bad stock" could be elicited.

Medical assistance was called after the birth because the child had a double thumb on the right hand and a deformed ear. It was evident that

more was involved than an imperfectly formed auricle, for in place of an external meatus there was a shallow pit lined by skin, and from the angle of the mouth to a point just below the pit ran a white line, as straight as if ruled, which was inelastic, was shown when the child cried, and as plainly due to imperfect fusion of the mandibular and axillary portions of the face. Finally, the outer third of the conjunctiva of the left eye was piled up in a dull white puckered tumour attached to the limbus of the cornea, like a huge pterygium, and later on prevented satisfactory closure of that eye.

The extra two phalanges were removed from the thumb on the fourteenth day, and no deformity persisted. Two anterior tubercles of the auricle were ligatured at the same time and cut off, the stumps healing well. The tubercles contained cartilage. Neither the eye condition nor the external meatus were interfered with.

The child now (one year) showed marked facial asymmetry, but was healthy, strong, apparently of normal intelligence, but it was not possible to decide yet whether there was any hearing on the left side.

Case of Deformity of the Skull with Bone Changes and Corneal Opacities.—Dr. REGINALD C. JEWESBURY and Dr. J. C. SPENCE.—Boy, aged 5 years. Parents healthy. One other child, aged 1 year, quite normal. A paternal uncle had deformities of the hands; this was the only instance of other cases of deformity in the family, going back for three generations.

The patient weighed 12 lb. at birth; labour difficult and prolonged, forceps delivery. No evidence of birth injury. Deformities of the fingers and corneal opacities present from birth. Backward in every way: walked at two years, began to speak at four years. Affectionate, but subject to fits of temper.

The boy presented a curious appearance: the cranial vault was abnormally high (acrocephaly); the face unusually broad and a slight degree of proptosis. Eyes—uniform faint corneal opacities; fundi could be seen clearly. Symmetrical deformity of fingers of both hands; terminal phalanges were flexed and the fingers could not be straightened. Some limitation of movement at elbow-joints. Intelligence poor, but he was not mentally deficient. Speech indistinct and “babyish” in type. Fond of music; could sing in tune. Habits clean. Central nervous system, *nil* abnormal. Wassermann reaction negative.

X-ray showed abnormal shape of head with some alteration in size and shape of pituitary fossa, also alteration in shape and structure of metacarpals and phalanges.

Lesion of the Crus Cerebri in a Girl, aged 7 years.—Dr. JEWESBURY.—In July, 1920, her memory appeared to be affected. One month later the left pupil became dilated, followed a little later by ptosis of the left eyelid. In September, 1920, a right-sided hemiplegia gradually appeared. The condition had been gradually progressive. She now showed a complete third nerve paralysis on the left side with a hemiplegia on the right.

Case of Oesophageal Obstruction in a Girl, aged $4\frac{1}{2}$ years.—Dr. JEWESBURY.—The child had never been able to swallow solid food from birth, but had no difficulty with fluids. A bougie could be passed $5\frac{1}{2}$ in. from the teeth. X-ray with bismuth meal showed large shadow at lower end of oesophagus.

Philadelphia Pediatric Society.

November the 9th, 1920.

J. CLAXTON GITTINGS, M.D., *President, in the Chair.*

Some Interesting Pædiatric Cases, with a New Method of Bacteriological Study and Treatment. -Dr. MEYER SOLIS-COHEN read this paper, which was a report of bacteriological studies of four cases, based on a test for immunity and susceptibility described by the writer in conjunction with Drs. Geo. D. Heist and Solomon Solis-Cohen. From their studies they concluded that the blood of human beings possesses bactericidal power against large numbers of organisms; that the blood of an individual differs in its bactericidal power against different organisms; that bactericidal power against a particular organism varies in different individuals; that in the discharge of an infected area organisms can be usually found against which the blood of the infected person has little or no bactericidal power; that frequently in such discharge or on such area other organisms are found against which the patient's blood has good bactericidal power; that organisms which are supposed to grow well in human blood fail to grow at all in the blood of some individuals; and that organisms which are supposed to grow poorly or not at all in human blood may grow with the greatest vigour in the blood of some individuals.

The practical object of his studies was to make vaccine therapy more specific. It was believed that the failure of autogenous vaccine treatment might be due sometimes to failure to include the ætiological organisms in the autogenous vaccine, and that certain harmful effects might be due to the injection of unnecessary foreign protein in the form of organisms that have no part in the infection. He regards the object of vaccine treatment to increase the bactericidal power of the blood against the infecting organism.

In the four cases which Dr. Solis-Cohen reported an earnest attempt was made in each to discover the infecting organism. Three received vaccines containing only those organisms present against which the patient's blood lacked bactericidal power; to the fourth serum was given.

CASE 1.—Baby girl, aged 14 months. Intermittent attacks of fever as high as 104° to 105° F., with whining cry and discomfort. Physical examination was negative except for a furunculosis chiefly over the buttocks. A culture on blood-sugar was made from the child's urine, which showed pus, and from a papule on the buttocks. *Staphylococcus albus* and *Staphylococcus citreus* were isolated from both. A broth culture of each organism was diluted 1:10, 1:100, 1:10,000, and each dilution was allowed to run in and out of a separate capillary tube, which was then filled with the baby's blood and sealed. After twenty-four hours' incubation the tubes were broken and a drop of each stained and examined under the microscope to see if any organisms were present. *Staphylococcus citreus* had grown well in most of the tubes, but *Staphylococcus albus* had practically disappeared. A vaccine was prepared from *Staphylococcus citreus*.

Thirteen doses of vaccine were administered at five-day intervals, the dose being one hundred million, two hundred million, four hundred million, eight hundred million, and thereafter a thousand million. The baby improved in health and appearance after the first dose. The crying spells with fever,

etc., gradually diminished. The furunculosis cleared up. In the past year the baby has been free from all symptoms and the urine remained clear.

CASE 2.—Girl, aged 6 years. Attacks of fever with urgency to urinate. Urine showed pus-cells in large numbers and the hæmoglobin was 60 per cent. Diagnosis: Pyelocystitis.

Blood-agar culture of a catheterised specimen of urine contained *B. coli* and *B. lactis aerogenes*, both of which grew in the child's blood, the former more vigorously. This is the more remarkable, as *B. coli* does not as a rule grow in human blood. A vaccine was made of both organisms. Eight injections were given at weekly intervals. First dose was twenty-five million, next three doses were fifty million, then two doses of sixty million, and finally two doses of seventy-five million. Hexamethylenamine and liquor potassii citratis were also administered. There was distinct general improvement with a gain of $5\frac{3}{4}$ lb. in seven weeks. Three months later the urine showed only a few leucocytes, and the child had been free from pain or urgency when the bladder was full and had not wet herself.

CASE 3.—Girl, aged 4 years, suffering from orthopnoea. Heart enlarged to right and 1 in. outside left nipple line. Double thrill over præcordia, pulse regular, weak and of low tension. Heart-sounds were obscure at first; later a double murmur, *crescendo* in character, was heard definitely over the entire chest, transmitted toward the axilla and scapula. The temperature curve was septic in type, reaching 100° F. in the afternoon and was unaffected by sodium salicylate, $7\frac{1}{2}$ gr. every three hours, or by quinine and urea hydrochloride in 3-gr. doses three times a day.

Cultures on blood-agar plates from the rhinopharynx contributed three isolated cultures: Gram-negative diplococcus, a diphtheroid, and *Micrococcus catarrhalis*. When incubated in the child's blood the first grew up well, the last irregularly and the other only in undiluted culture. A vaccine was made of the Gram-negative diplococcus. Two doses of twenty-five million were administered six days apart, a week later fifty million were given and ten days later a hundred million. There was never a reaction, and the temperature remained practically normal after the second dose. In this case the vaccine treatment should have been continued longer, but Dr. Solis-Cohen went off service in the hospital where this little girl was and his successor discontinued the vaccines, which resulted in a subsequent rise in temperature.

CASE 4.—Girl, aged 10 years. Admitted to hospital for recurrent nose-bleed. Examination showed a markedly hypertrophied heart with a loud mitral systolic murmur blowing in character and with probably a presystolic element attached; both lungs were infiltrated with enlarged peribronchial glands.

X-rays verified these findings. She had had pneumonia with empyema seven years previously. Dr. Solis-Cohen was of the opinion that the same organism that participated in the pneumonia was responsible for the empyema, and was probably responsible for the cardiac complications as well. Cultures from the sputum showed only the commonly found organisms, while the blood culture was sterile. Smears from the rhinopharynx cultured and grown in the patient's blood showed a pure culture of *Streptococcus hæmolyticus*. He deemed it unwise to administer a vaccine of this organism and instead injected antistreptococcic serum. One dose of 10 c.c., two doses of 20 c.c. and four doses of 40 c.c. were given at intervals of from one to four days. After the third dose the temperature dropped, reaching normal in two days. It rose again and did not begin to fall again until two days after the last dose. She gained $2\frac{3}{4}$ lb. in twelve days. After a

little over three months she was discharged from the hospital, at which time she was walking about all day.

The Use of Lactic-acid Milk in the Feeding of Under-nourished Infants. —Dr. ELEANOR C. JONES, who read this paper, stated that the only remedy for such infants is food which must be prepared in such form that it can be digested and absorbed by an already weakened and atrophied intestinal tract. As the caloric needs of such infants are greatly in excess of that of normal babies, the food must be easily assimilable, highly nourishing and concentrated. To meet these indications she followed Dr. Marriott's method of using whole lactic-acid milk with the addition of corn syrup in high percentages, as he has pointed out that it has been a matter of common experience that infants suffering from gastro-intestinal disturbances are able to take larger amounts of milk artificially soured by lactic-acid organisms than they can by sweet milk. The observation is especially true as regards the digestibility of the fat in lactic-acid milk.

Dr. Marriott advises beginning the feedings with equal parts of whole lactic-acid milk and buttermilk, then gradually reducing the buttermilk until the infant is taking all pure lactic-acid milk. When it is sure that the infant can digest this undiluted lactic-acid milk, carbohydrates are added in the form of corn syrup (karo), which consists of 33 per cent. dextrins, 20 per cent. maltose, 15 per cent. glucose or dextrose and $3\frac{1}{2}$ per cent. cane-sugar. The advantage of using this mixed carbohydrate food is that it is split up in the digestive tract at varying intervals and does not flood the intestines with simple sugars. Furthermore, dextrins are protective colloids, and probably have a favourable action in the digestibility of the proteins in the same way as does starch.

Dr. Jones used this method on four very much under-nourished babies, and obtained most excellent results. She calculated that karo by volume contained 110 per cent. of carbohydrates with a caloric value of 110 calories per ounce. In her first series of four babies whom she fed on lactic-acid milk she began with equal parts whole lactic-acid milk and buttermilk, and gradually reduced the buttermilk, but also added about 3 per cent. corn syrup. It made the food more palatable. Three of the four babies were gradually increased till they were taking nearly pure lactic-acid milk and 10 to 12 per cent. corn syrup. No vomiting or diarrhoea occurred in any of these cases, while frequent examination of the stools showed no fatty acids and very little soaps. On this feeding the characteristic stools were smooth and salve-like, light grey in colour, numbering one to three per day. The fourth infant was unable to take more than $2\frac{1}{4}$ per cent. fat; the stools invariably showed undigested fat if this amount were exceeded. These infants were fed every four hours—six feedings per day. None of them developed any symptoms of intoxication despite the high content of the food, and again showed the high tolerance of atrophic infants for carbohydrates. The daily caloric value of food reached 80 to 100 calories per pound of body-weight. The weight gain was very satisfactory; every infant, after a few days of adjustment, gained steadily.

Dr. Jones reported another series of atrophic infants fed on lactic-acid milk with equally good results. These babies, from being horrible, shrivelled and distressed-looking specimens, grew to be healthy-looking babies, their flesh became firm and elastic, and their spirits brightened with their general appearance of well-being.

She concluded from her study of these cases that whole lactic-acid milk

with corn syrup is especially indicated in young atrophic infants if neither vomiting nor any organic disease are present, as it supplies a concentrated food of high caloric value in a form that can be assimilated by the weakened digestive organs of the under-nourished infants.

The Frequency of Pyelitis in its Relationship to the Nosology of So-called Obscure Temperatures in Infants.—Dr. HARRY LOWENBURG pointed out in this paper the great difficulty in determining the cause of fever in infants and young children. In such little patients the physician's ability to determine the cause of temperature of more or less indefinite duration, particularly when it is of so-called obscure origin, depends upon the ability and desire to conduct a thorough and painstaking physical examination, and by the limitations of laboratory investigations and the use made of these. After enumerating the common causes of so-called obscure fever in infants and young children, he emphasised the importance of pyelitis—a disease common enough in infancy, but frequently overlooked by the general practitioner on account of omitting the important procedure of examining the baby's urine.

Symptoms.—Constitutional or other symptoms, aside from irregular fever of more or less indefinite duration, may be absent. An examination of the urine reveals pus, and the riddle is solved. The number of leucocytes or pus-corpuscles to the field necessary to a diagnosis may cause some confusion. In the absence of vaginitis, eight, ten or more corpuscles should at least create a strong suspicion. Still places the number as low as six or less to the field. This alone to his mind, without fever or albumin, would hardly, in a female infant, be convincing evidence. Neither a few corpuscles alone nor albumin alone occurring in traces would make certain the diagnosis, but both together presenting in an acid urine obtained by catheter or after vulvar cleansing, especially if the colon bacillus is present, offer convincing evidence, in the presence of fever not due to other demonstrable cause, of the incidence of this disease. Pyelitis occurs without fever. Here the history of a previous acute illness not far removed from the present, and probably not diagnosed, is usually available and highly suggestive, especially with pus in the urine at the present time. Relapses are quite common under these circumstances. Frequently in infectious diseases pus appears in the urine with albumin from toxic irritation of the kidneys, but if no other disease be demonstrable the urinary findings are sufficient to make the diagnosis of pyelitis.

Constitutional symptoms may be intense at times—convulsions, rigors, etc., abrupt high fever, cyanosis, vomiting, diarrhoea—the diagnosis being made by exclusion and on the findings in the urine.

Urinary symptoms.—Aside from the classical ones already given, there may be tenderness along the ureters; painful and frequent micturition are rarely present unless cystitis accompanies the pyelitis. Cystoscopy and ureteral catheterisation offer a valuable means of studying and treating chronic pyelitis, which does not yield to potassium citrate, hexamethylenamine or vaccine. Dr. Lowenburg said that most of his patients were female, and that in all of them the colon bacillus was found in the urine. He described thoroughly the technique of obtaining specimens of urine for routine study and for bacteriological study.

Treatment.—Potassium citrate or other alkalisng agent must be administered till the urine becomes free from pus and *B. coli*. The effect of the citrate is practically specific. Large doses may be necessary. The

urine must be kept alkaline at all times till it is free from pus and bacilli, when the dosage of citrate may be gradually decreased and finally stopped. It may be necessary to give as much as 20 gr. every two hours, day and night, for weeks. This has been done without any apparent ill-effects on the child. He stated that hexamethylenamine had given him no encouraging results, except where it apparently temporarily cleansed the urine in a case of chronic pyelitis without fever. Hexamethylenamine must not be administered during the use of alkalis. There are cases which will not yield permanently to this drug or to the alkalis; there is always a relapse when the drugs are discontinued. In these cases the organisms probably remain dormant during the alkalisation of the urine, later resist the alkaline environment and become clinically active. They are, as it were, alkaline-fast. Autogenous vaccines should be tried in these cases in large doses and over long periods of time.

Dr. Lowenburg reported many cases of pyelitis, illustrating the finding of the cause of the so-called obscure fever, with their treatment and the lessons learned from their study.

Abstracts from Current Literature.

Acute Infectious Diseases.

Bacteriological researches on the influenza epidemic 1918 20 (*'La Pediatria,'* 1920, xxviii, p. 849).—**M. Sindoni** studied agglutination with Pfeiffer's bacillus, and found that in 91 per cent. of cured cases agglutination took place with dilutions between the limits of 1 to 25 and 1 to 50. In convalescents the percentage rose to 100 per cent. in dilutions of 1 to 25 to 1 to 100. In the sick, on the other hand, the percentage sank to 43 per cent. with the same dilutions. She also found that in the cured deviation of the complement was always negative, while it was positive in 14 per cent. of convalescents and 37 per cent. of the sick.

VINCENT DICKINSON.

Researches on blood changes in influenza (*'La Pediatria,'* 1920, xxviii, p. 625).—**G. Milio**, during the epidemic at Palermo in 1918, undertook some experiments to ascertain the hæmoleucocytic formula, the viscosity of the blood and the time of coagulation. From an analysis of twenty cases he found that in children suffering from this complaint there was a slight diminution of hæmoglobin and red cells. In simple cases the leucocytes were normal in 25 per cent., and there was leucopenia with diminution of the polynuclears and increase of lymphocytes in 75 per cent. In complicated cases there was leucocytosis and polynucleosis in 70 per cent. The viscosity of the blood showed no change in all the cases examined and the coagulability was on an average 2.58, which may be considered normal.

VINCENT DICKINSON.

Pandemic influenza in children (*"Med. Klin.,"* 1920, xvi, p. 1319).—**Hamburger** and **Bálint** maintain that pandemic influenza in children is a formidable disease. In addition to cases of broncho-pneumonia, in which the areas tend to become confluent, pleurisy is a frequent complication. A large number of the severe cases show toxic symptoms. The disease appeared

to be worst in rickety children, and children with severe rickets invariably succumbed. All possible methods of treatment were employed without much success.

J. D. ROLLESTON.

Cats and human diphtheria (*Journ. of Hyg.*, 1920, XVIII, p. 448).—**W. G. Savage** discusses the evidence associating cats with human diphtheria, and records the results of his own investigations, which were conducted as follows: (1) Bacteriological examination of the nose and throat of healthy cats not associated with any cases of human diphtheria; (2) bacteriological and pathological examination of cats associated with human diphtheria; (3) experimental investigations of kittens. Examination of the nose and throat of eight healthy cats and twelve kittens showed that none of the twelve kittens had any organisms resembling diphtheria bacilli, while in five of the eight cats organisms more or less closely resembling Klebs-Loeffler bacilli were found, but with one possible exception were definitely not diphtheria bacilli. Examination of five cats associated with human cases showed no anatomical lesions resembling diphtheria and no definite diphtheria bacilli could be isolated. Experiments on nineteen young kittens were exceptionally uniform and concordant, it being found impossible to infect them by throat swabbing, though very massive doses were invariably used. Savage concludes that the common and widely accepted view that cats can suffer from diphtheria is entirely unfounded. He considers that the cases regarded as such are based upon insufficient examination and differentiation of the bacilli, due to a failure to realise that a large proportion of healthy normal cats contain in their throats bacilli which closely resemble true diphtheria bacilli.

J. D. ROLLESTON.

Tonsillectomy as a means of treatment in diphtheria carriers (*Med. Journ. Austral.*, 1920, I, p. 361).—**G. Brown** finds this operation of value in removing infection from diphtheria and that the tonsils are frequently the site of the growth of the organisms.

F. R. B. ATKINSON.

Malignant hæmorrhagic scarlet fever (*Riv. di Clin. Ped.*, 1920, XVIII, p. 405).—**G. Tron** states that the rarity of malignant hæmorrhagic scarlet fever is shown by the fact that during the last fifteen years, in which 5000 cases of scarlet fever have been admitted to the Milan Hospital for Contagious Diseases, only four cases of this type have been seen. The first occurred in a boy, aged 15 years, who, on the sixteenth day of disease, developed hæmaturia and gingival hæmorrhages. He was treated by normal horse-serum, and recovery took place after a long period of anæmia. The other three cases, which were all fatal, occurred in women, aged 19, 22 and 33 respectively, during the first week of the disease, and were characterised by the presence of petechiæ, hæmaturia and metrorrhagia. The necropsies showed subpleural, subepicardial and subperitoneal hæmorrhages, as well as hæmorrhages in the submucous coat of the intestine and uterus.

J. D. ROLLESTON.

Measles experimentally produced (*Arch. of Ped.*, 1921, XXXVIII, p. 90).—**F. G. Blake** reports his experiments on the transmission of measles to monkeys at the Hospital of the Rockefeller Institute for Medical Research. The monkeys were inoculated with the naso-pharyngeal washings collected by saline irrigation of the naso-pharynx, 5 to 10 c.c. of the

nasal washings being injected intratracheally. Of twelve monkeys inoculated ten developed characteristic symptoms of measles after an incubation period of six to ten days. The onset was marked by drowsiness, loss of appetite and leucopenia. The conjunctivæ became inflamed and typical Koplik's spots appeared. One to five days after the onset a red maculo-papular rash appeared, usually coming out first on the face and then spreading to the chest, abdomen and inner side of the thighs. It was rarely as thick or wide-spread as measles in the human subject, but went through the regressive changes characteristic of measles, ending with desquamation. The temperature might rise to 105° to 106° F., or there might be little or no fever, or the fever might be present only in the prodromal stage. The degree of leucopenia was sometimes as low as 4000 over a period of several days. The normal leucocyte count in the monkey averaged somewhat higher than in the human being, the normal fluctuation being from 15,000 to 25,000. In only one respect did the reaction in monkeys differ from human measles, viz. in the absence of any evidence of rhinitis or bronchitis. The possibility of the reaction being due to some filterable toxin rather than to the living virus of measles was excluded by the successful transmission from monkey to monkey. Tissue emulsions from one of the monkeys transmitted the disease to two other monkeys, one of which was killed shortly after the appearance of the exanthem, and the disease transmitted to two other monkeys and so on. With the continuous passage the exanthem became more marked and persisted for a longer period. The development of immunity was also investigated. Six monkeys which had had an attack of the experimental disease were reinoculated at periods varying from 12 to 254 days after recovery from the experimental disease, in four cases intravenously and in two intratracheally, and none of them showed any evidence of infection. Lastly, histological examination of the lesions in the skin and mucous membrane showed that they were essentially the same as those of measles in man.

J. D. ROLLESTON.

Measles in a newborn child (*Deutsch. med. Woch.*, 1921, XLVII, p. 271).—E. Schulze reports a case of measles in a breast-fed infant whose mother had had an eruption accompanied by catarrh fourteen days before its birth. On the fourth day of life the morning temperature was 100.4° F., and the evening temperature 101.2° . Apart from rhinitis nothing else abnormal was noted. On the fifth day the temperature in the morning was 102° and in the evening 101.6° , and the rhinitis was more marked. On the sixth day the whole body was covered with a typical measles eruption. There was slight conjunctivitis, but no Koplik's spots. The temperature on the four days following the appearance of the eruption ranged between 100.4° and 102.2° F. Five days after the onset the temperature became normal. Mairinger reported a similar case in which the mother's eruption was present at childbirth. Although the infant was isolated, a typical measles eruption appeared fourteen days after birth.

J. D. ROLLESTON.

Anomalous measles (*Arch. Lat.-Amer. de Ped.*, 1920, XIV, p. 519).—J. Bonaba records two cases of measles remarkable for the unusual length of the period of invasion. The first case, a boy, aged 7 years, was taken ill with rhino-pharyngitis, bronchitis and fever. A prodromal rash appeared on the sixth day. The general condition then became serious, with a

temperature of 104° F., prostration, delirium and absolute anorexia. On the tenth day the characteristic eruption of measles appeared, and the subsequent course of the disease was uneventful. The second case, a boy, aged 9 years, brother of the first, was taken ill with fever and coryza, which lasted for fourteen days, at the end of which time the characteristic eruption appeared, and the disease ran a favourable and uncomplicated course. Coexistent infections such as tonsillitis, otitis or broncho-pneumonia could be excluded.

J. D. ROLLESTON.

Incomplete measles (*Arch. Lat.-Amer. de Ped.*, 1920, xiv, p. 417).—**M. A. Ugón** records three cases of measles in infants aged from 1 to 3 months infected by their nurses which were remarkable for the following reasons: (1) The appearance of measles in breast-fed infants a few months old who have a certain immunity to the disease even in an infected environment. (2) The paucity of symptoms and extremely mild character of the disease in spite of the severity of the nurse's attack. In three cases there was slight rhino-pharyngitis with conjunctivitis in two cases. Only one had an eruption, which lasted for a few hours. None had a buccal enanthem. (3) The simultaneous onset in the three cases eight days after the nurse's eruption.

J. D. ROLLESTON.

Anomalous and complicated varicella (*Arch. de méd. des enf.*, 1920, xxiii, p. 714).—**I. Iankoff** records two cases of varicella in children, aged 23 months and 2½ years respectively, in whom the lesions were umbilicated and the eruption confluent. In one case the attack was complicated by acute infective colitis, and in the other by profuse choleric form diarrhoea. Both cases recovered. The elder brother of one of the patients had so mild an attack that it almost escaped notice. The elder sister, on the other hand, had a febrile attack of a week's duration without any eruption apart from a solitary bulla at the base of the uvula. Iankoff comes to the following conclusions: (1) Confluence of the eruption in varicella should be regarded as rare, but not impossible. (2) The vesicles in varicella fairly often undergo umbilication, so that this phenomenon should not exclude varicella. (3) Umbilication is not necessarily confined to the confluent form of varicella. (4) In extremely rare cases varicella may assume an abortive form and escape notice. (5) In exceptional cases the complications of varicella may affect the alimentary canal.

J. D. ROLLESTON.

A new site for vaccination (*New York Med. Journ.*, 1920, cxii, p. 1035).—**I. H. Goldberger** during the last seven years, in the course of which he has vaccinated over 500 children, has used the inner and back side of the arm for vaccination for the following reasons: (1) It leaves no visible scar; (2) it does not prevent children having their daily bath while vaccination is going through its various stages; (3) there is little or no exposure to infection from outside sources; (4) it minimises sources of trauma; (5) there are no infiltrations, extensive indurations, sloughing or extensive scarring. The method is carried out as follows: After the arm has been cleansed the forearm is flexed at right angles and the vaccine is applied below a line midway between the internal condyle of the humerus and the anterior axillary line. The virus is allowed to dry thoroughly before placing over the abrasions a sterile pad of gauze, which is held in place by strips of adhesive plaster.

J. D. ROLLESTON.

Meningeal syndrome at the onset of smallpox (*Rev. Españ. de med. y cir.*, 1920, III, p. 110).—**M. Puig** records two cases of smallpox in children, aged 2 and 5 years respectively, which began with symptoms resembling meningitis (convulsive attacks, nuchal rigidity, Kernig's sign, mydriasis and photophobia). On lumbar puncture in one case 85 c.c. of clear non-albuminous fluid were withdrawn under pressure. These phenomena indicated a serous meningitis, possibly caused by the virus of smallpox in a specially predisposed subject, one of the patients having had brothers or sisters who had died with symptoms of meningitis.

J. D. ROLLESTON.

The ætiology of whooping-cough (*La Pediatría*, 1920, XXVIII, p. 113).—**O. Cozzolino** combats the view of A. Czerny, that this disease is a local catarrh of the air-passages caused by germs of different kinds, the characteristic symptoms being due to a constitutional tendency to hereditary neuropathy, and that it is not due to any specific infection. This theory has received further support from A. Niemann (*Jahrb. f. Kinderheilk.*, 1919, xc, p. 77), from his experience in the Berlin-Halensee asylum for infants. The author affirms that in this theory there is no practical or scientific substratum, and that it also tends to under-rate the important researches of Bordet and Gengou, and, moreover, tends to lead the medical public along the wrong and perilous road of an absolute prophylactic nihilism by destroying the solid basis of the conception of a living and specific contagium.

VINCENT DICKINSON.

The influence of sex on the frequency of whooping-cough (*Bull. et mém. soc. méd. des hôp. de Paris*, 1920, XLIV, p. 324).—**E. Apert** and **Cambéssèdes** state that both in France and other countries whooping-cough is much more prevalent among females than males. During 1919 in the whooping-cough pavilion at the Hôpital des Enfants Malades in Paris 150 girls were admitted as compared with 88 boys. The statistics of the City of Paris from 1894–1903 also show a higher incidence and mortality among girls, though not so pronounced as that noted by the writers. The predilection of whooping-cough for the female sex is all the more remarkable as it is not found in any of the other infectious diseases of childhood, such as measles, scarlet fever, mumps and diphtheria, which are all more frequent and severe in the male sex.

J. D. ROLLESTON.

An experimental and clinical therapeutic study of whooping-cough (*Bull. Johns Hopkins Hosp.*, 1920, XXXI, p. 236).—**D. I. Macht**, from its use in 115 cases, the vast majority of which were in children, aged from a few weeks to 14 years, has found that the use of benzyl benzoate solution either alone or preferably with small doses of benzaldehyde exerted a palliative, though not curative, effect on the violence and number of the whooping-cough paroxysms. Five to forty drops of a 20 per cent. solution of benzyl benzoate were given three or four times a day and oftener according to the age of the patient and severity of the disease. The beneficial effects of the drug were attributed (1) to its antispasmodic effect on bronchial spasm, (2) to its sedative effect on skeletal muscle, (3) to its anæsthetic effect on the larynx, (4) to its expectorant action, (5) to its antiseptic action.

J. D. ROLLESTON.

Sudden death in whooping-cough (*La Pediatría*, 1920, XXVIII, p. 305).—**I. Nasso** records a case of whooping-cough in a child, aged

14 months, in whom the paroxysms were accompanied or sometimes replaced by attacks of spasmodic sneezing. Death took place one morning during an unusually violent attack, being probably due to spasm of the glottis and arrest of the heart associated with spasmophilia. Nasso thinks that it would be advisable to submit all cases of whooping-cough in infants, even if there are no signs of spasmophilia, to anti-spasmodic treatment. In severe cases subcutaneous injections of magnesium sulphate should be given.

J. D. ROLLESTON.

The duct sign in mumps (*'Amer. Journ. Dis. Child.'* 1920, xx, p. 75).—D. M. Cowie describes a phenomenon which he found in 96 per cent. of his cases of mumps, and thinks is probably present in all cases of parotid mumps at some time in the course of the disease. It consists in a reddened spot measuring 1–2 mm. in diameter, corresponding to the orifice of Steno's duct on the affected side. The duct will usually be found to project beyond the surface of the mucous membrane for 1–3 mm. The duct is œdematous and usually pale in contrast with the central red spot, but is sometimes slightly injected. No changes were seen in the ducts in submaxillary mumps or parotid mumps in which the submaxillary glands were involved. Cowie has not determined whether the duct sign is pathognomonic of specific parotitis or is present in other acute inflammations of the parotid gland.

J. D. ROLLESTON.

Typhoid fever of long duration (*'La Pediatria,'* 1920, xxviii, p. 1134).—G. di Giorgio describes three cases which tend to show that typhoid may be prolonged even for many months without causing noticeable disturbance of the various functions of the organism. From a certain point of view this special behaviour of the infection may approximate to the so-called ambulatory typhoid. Diagnosis in such cases can only be made by laboratory methods. Vaccine therapy is just as effective as in acute cases.

VINCENT DICKINSON.

Acute cholecystitis in children as a complication of typhoid fever (*'Bull. Johns Hopkins Hosp.'* 1920, xxxi, p. 7).—M. R. Reid and J. C. Montgomery, of the Surgical and Pediatric Clinics of the Johns Hopkins Hospital, have collected eighteen cases of typhoid fever in children who either died or were operated on for acute cholecystitis. Eight cases which occurred prior to 1893 died without operation. Since then ten cases which have been treated surgically have been reported with only one death. In recent years cultures of the gall-bladder have usually been made at the time of the operation. When there was a pure culture of the typhoid bacillus the leucocyte count was relatively low—about 10,000. The writers emphasise the importance of differentiating between gall-bladder complications which do and those which do not require operation. Slight pain and tenderness in the region of the gall-bladder with a slight degree of spasticity of the rectus are not uncommon in typhoid fever, and the vast majority of such patients get well without operation.

J. D. ROLLESTON.

Congenital malaria (*'Arch. de méd. des enf.'* 1920, xxiii, p. 606).—A. Cuadra records the case of a woman with a history of malaria, who gave birth to a child on January 19. The labour was difficult, and forceps were applied. On January 21 the mother had a rigor and the temperature rose to 104° F. The child's temperature was also found to be 104° F.,

and microscopical examination of the mother's and infant's blood showed the presence of *Plasmodium vivax* in each case. The mother was treated by injections of quinine and the infant by euquinine by mouth, and by January 28 the temperature became finally normal in both mother and child.

J. D. ROLLESTON.

Malaria among children in Palestine (*Arch. of Ped.*, 1920, xxxvii, p. 494).—**S. Rabinoff**, who records his experiences of malaria among children in Palestine in 1918, states that the outstanding features of malaria in children are as follows: The chill is less frequently an initial symptom than in adults. On the other hand there is a greater tendency to convulsions and other nervous manifestations, such as restlessness, twitchings, fretfulness or drowsiness. In children under 2 years there are very frequently gastro-intestinal symptoms, such as vomiting, constipation, diarrhoea, and occasionally bloody stools. The interval between the attacks is usually marked by a striking return to a normal appearance. Lastly, there is a much greater tendency to irregularity of temperature than in adults. Fifty-nine of Rabinoff's patients were under 1 year, and of these 7 were under 1 month. The youngest patient was a few hours old and had a temperature of 105° F. The mother had suffered for several years from chronic malaria, with acute exacerbation from time to time. Examination of the infant's blood showed tertian parasites. Quinine in 1-gr. doses every 2 hours was ordered. There was only a slight rise of temperature on the third day and no recurrence took place.

J. D. ROLLESTON.

An important factor in the cure of malaria (*Journ. Amer. Med. Assoc.*, 1920, lxxv, p. 1003).—**L. R. Debuys** states that the presence of carriers in a household is the probable explanation of apparently unsuccessful treatment in spite of the proper use of quinine, a supposed relapse being really a re-infection. He records the case of a boy, aged 6 years, brought to hospital with the history of having had fever for two months. Examination of the blood showed that he was infected with the æstivo-autumnal type of parasite. He was given quinine treatment and discharged as cured, but some days later returned with a fresh attack. The other members of the household—two sisters and a brother—were then examined, and their blood also showed the æstivo-autumnal type, though with the exception of an enlarged spleen, they had no evidence of disease. They were all treated and their blood sterilised, and no further attacks took place.

J. D. ROLLESTON.

Mediterranean fever in children (*La Pediatria*, 1920, xxviii, pp. 1 and 57).—**G. di Cristina** and **S. Maggiore** distinguish nine types as occurring in children, viz. hyperpyretic, undulant, splenomegalic, dyscrasic, biliary, adynamic, rheumatoid, nervous and renal, each of which is lucidly and fully described, and four types associated with Leishmaniasis, enteric, dysentery and tuberculosis respectively. They insist on vaccine therapy as the only effectual method of cure and describe three types of vaccine: (1) those prepared with bacilli acted on by heat or chemicals; (2) those with attenuated or living organisms; (3) those prepared with products of disintegration of the bacilli. In conjunction with Caronia the authors have proved the advantages of the last type, which are—the absence of violent reaction, prompt absorption and effect, and small dosage.

VINCENT DICKINSON.

The iodo-reaction in urine (*'La Pédatrie,'* 1920, xxviii, p. 182).—**G. Genoese** tabulates eighty cases of typhoid, tubercle and other diseases. According to Petzetakis, who described it in 1915, the reaction never occurred in the urine of normal individuals, was always negative in closed pulmonary tubercle and constant in cases of typhoid in which Ehrlich's diazo-reaction and Vidal's serum reaction were present. The author, however, found that it had no clinical value, that it occurred in healthy individuals, might be absent in acute and present in chronic infections. In tuberculosis it was absent in serious cases and present in those of moderate gravity. Also in typhoid it occurred neither early nor constantly, and could not take the place of the diazo-reaction or constitute any valuable help in diagnosis.

VINCENT DICKINSON.

Nitrogen output in infectious diseases (*'Gaz. des Hôp.,'* 1920, xciii, p. 937).—**J. Manet** finds that in measles the urea may rise up to the appearance of the rash and then fall to normal when desquamation begins, or it may be normal at the commencement and rise at the end of the pyrexia during convalescence. Achard and Fenillée, who have found a rise of urea during convalescence from some infectious diseases, attribute it to retention of nitrogen for repair of albuminous tissues. In measles complicated by bronchitis and broncho-pneumonia the output of urea is lowered to the end of the febrile period. The urea of the cerebro-spinal fluid can remain raised or even increase at the termination of measles due to some complication. Nobécourt and Maillet have described nitrogenous excess in infants in a form of meningitis which may accompany violent gastro-intestinal troubles, also in cholera nostras the same has been found. In smallpox the output of urea is raised at the beginning of the suppuration, to fall to normal with the temperature; in severe cases the urea continually rises. In typhoid fever the urea rises according to the severity of the disease, and the larger outputs are often accompanied by convulsions or other nervous crises. The writer finds that salts of ammonia will increase the output of urea, so the treatment must be considered in weighing the result.

J. PORTER PARKINSON.

Syphilis.

A case of congenital syphilis (*'Dublin Journ. Med. Science,'* 1911, ii, p. 229).—**Sir J. Moore**.—A girl, aged 12 years, was admitted to hospital with a history of fits. She was pale, looked delicate, was unable to speak, and examination revealed complete loss of motor power to the left arm and leg. The knee-jerks were increased more in the left than in the right limb, and ankle clonus was also present in a marked degree. Temperature was subnormal; tongue coated; front teeth were notched and bridge of nose was markedly saddle-shaped. The Wassermann reaction was markedly positive. The child's mother was syphilitic; the father died from general paralysis. Under treatment with Donovan's solution very rapid improvement took place. The child subsequently had an attack of herpes zoster.

J. ALLAN.

The significance of syphilis in prenatal care and in the causation of foetal death (*'New York State Journ. Med.,'* 1920, xx, p. 252).—**J. W. Williams** emphasises the importance of the recognition and treatment of

syphilis early in pregnancy. This constitutes an important and fruitful field for a radical reduction in foetal mortality. Syphilis represents only one of the causes of foetal death, but it appears to offer the most promising field for immediate results.

J. ALLAN.

The uvulo-palatal sign of congenital syphilis (*Arch. ital. di otol., rinol. e laryngol.*, 1920, xxxi, p. 452).—**A. Bergamini** discusses the sign described by Tanturri (*vide BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1919, xvi, p. 120), which consists in a characteristic notching of the border of the soft palate in the neighbourhood of the junction of the anterior pillar of the fauces with the base of the uvula. The lesion is said to be bilateral and quite obvious. The surrounding mucosa is intact, and the motility and tactile and thermal sensibility of the soft palate are unimpaired. Bergamini investigated the sign in 100 cases of congenital syphilis but with an unusually negative result, the free border of the soft palate and especially the uvulo-palatal angle being perfectly normal. The same was to be said of the rest of the oro-pharyngeal mucosa, apart from an intense pallor in some cases obviously due to the wretched state of nutrition of the children. Bergamini, therefore, concludes by saying that while he cannot absolutely affirm or deny that individuals with Tanturri's lesion are the subjects of congenital syphilis, he can assert that the sign is not present in all cases of the disease.

J. D. ROLLESTON.

Von Dungern's reaction in congenital syphilis (*La Pediatria*, 1920, xxviii, p. 1041).—**F. Lo Presti-Seminario** compared this reaction with the Wassermann reaction in 82 children, of whom 62 were certainly syphilitic and 20 certainly not. The result obtained showed that out of 36 infective children with a positive Wassermann reaction, Von Dungern's test was positive in 5 only, while in 26 with negative Wassermann reaction Von Dungern's reaction was positive in 3. Out of 62 cases of definite hereditary syphilis Von Dungern's reaction was positive only in 8, while in the 20 non-syphilitic cases it was positive in 4 and negative in 16.

VINCENT DICKINSON.

Further observations on the Wassermann reaction in human milk (*La Pediatria*, 1921, xxix, p. 121).—**C. L. Rusca** finds that in the milk of syphilitic women untreated, or only partially treated, it is possible even at a very advanced stage of prolonged lactation, or after it has ceased, to demonstrate the presence of specific antibodies. The reaction in milk is less sensitive than in the blood, and therefore of inferior diagnostic value. A positive reaction in the milk probably indicates serious and active syphilis. With specific treatment the reaction disappears earlier from the milk than from the blood.

VINCENT DICKINSON.

Congenital heart disease and hereditary syphilis (*La Pediatria*, 1920, xxviii, p. 992).—**S. de Stefano** found that out of 32 cases, 26 males and 6 females, of ages between one month and two years, abortions and premature births took place in the parents in 16 cases, *i.e.* 50 per cent., definite syphilis in the father in three cases, no hereditary precedent in 11 cases, *i.e.* 34 per cent. In 14 cases Roger's disease was present, in 12 morbus ceruleus associated with dextrocardia in 1 case, in 4 pulmonary stenosis. Splenomegaly was present in 12 cases, enlarged liver in 7, epitrochlear glands in 4, depressed nose with rhinitis in 3, hydrocephalus in 2, cutaneous and mucous syphilitic manifestations in 1, Mongolian patches in

1, hypospadias in 1, polydactylia in 1, situs inversus in 1, while in 9 there were no suspicious manifestations. The Wassermann reaction was performed in 30 cases. In 23 cases, or 72 per cent., a luetic infection could be admitted with certainty.

VINCENT DICKINSON.

Congenital anomalies and inherited syphilis (*'La Pediatria,'* 1921, xxix, p. 59).—**S. de Stefano** examined 272 cases of congenital anomalies and malformations at the Naples University Pædiatric Clinic for the presence of syphilis, the presence of which was determined by the history, the association of other specific symptoms, and the results of the Wassermann reaction performed simultaneously in the parents and children. The cases included 54 of hydrocephalus, in which syphilis was present in 50, 23 of spina bifida, 9 of which were positive, 32 of congenital heart disease, 27 of which were positive, 69 of hypothyroidism, 59 of which were positive, 46 of Mongolian imbecility, 34 of which were positive, and 17 pluriglandular syndromes, of which 15 were positive. De Stefano's cases show the great frequency of congenital syphilis in the ætiology of congenital anomalies and malformations, although it is not the exclusive cause. This is a matter of very great importance, especially from the prophylactic standpoint, because a rational treatment of syphilis in the parents ought to prevent to a certain extent a large number of congenital defects.

J. D. ROLLESTON.

Absence of upper lateral incisors in congenital syphilis (*'Dermat. Woch.,'* 1921, lxxii, p. 113).—**J. Sichel** states that Mandelbaum in 1917 first drew attention to unilateral or bilateral absence of the upper lateral incisors in congenital syphilis. Sichel examined 1200 unselected patients, and in 50 cases, or 4·2 per cent., found an absence of the upper lateral incisors on one or both sides. Only those cases were considered in which loss or extraction could be excluded. Of the 50, 26, or 50·2 per cent., were children of syphilitic parents and gave a positive Wassermann reaction; the other cases were suffering from indifferent diseases. Sichel concludes that though this dental anomaly cannot be regarded as diagnostic of congenital syphilis it is a useful guide, and should prompt a search for further signs of the disease. The phenomenon is attributed to parathyroid insufficiency owing to the great influence which these glands have on ossification.

J. D. ROLLESTON.

Fibrous osteitis and inherited syphilis (*'Bull. et mêm. soc. de chir.,'* 1920, xlvi, p. 1485).—**A. Mouchet** has recently observed two cases of fibrous osteitis in which there was no doubt about the presence of inherited syphilis. The first case was a girl, aged 12 years, who had had pain in her right foot from involvement of the astragalus since she was four years old. The pain had improved as the result of treatment, but the anatomical condition had not undergone any change. The other case was in a girl, aged 17 years, who had suffered for some months from pain in the right trochanter. There was slight atrophy of the right lower limb, but the movements of the hip and knee were normal. There was slight tenderness on pressure on the great trochanter without increase in size. X rays showed the rarefaction and polycystic appearance characteristic of fibrous osteitis. Subsequently the girl slipped on the floor and fractured her femur at the site of the fibrous osteitis.

J. D. ROLLESTON.

Parrot's pseudoparalysis ('*La Pediatria*,' 1920, xxviii, p. 161).—**S. de Stefano** tabulates 35 cases. Of these 18 were males, 17 females. The onset in the majority of them was about the second half of the second month. In 20 there was more or less evidence of parental syphilis, in 8 probable evidence, and in the remaining 7, *i. e.* 20 per cent., no evidence or suspicion of it. There was a large prevalence of localisation in the upper extremities; a hemiplegic form was very rare. Rhinitis, splenomegaly and condylomata were present in the syphilitic cases, and the Wassermann and Noguchi tests gave positive results in most of them. The prognosis was doubtful, as many of the cases were lost sight of. **VINCENT DICKINSON.**

Articular effusion due to congenital syphilis ('*Glasg. Med. Journ.*,' 1920, II, p. 306).—**J. S. Buchanan** reports a case in a boy, aged 11 years, who came under observation because of swelling of knees and a disinclination to walk. Considerable fluid was present in both knees. No pain or tenderness; no restriction of movement. It was obviously syphilitic, as he showed keratitis, fissures, pegged teeth, etc. Boy's blood gave a positive Wassermann, and the father's was positive also. **W. Galbraith** ('*Glasg. Med. Journ.*,' 1920, II, p. 307) records a case in a boy, aged 13 years, who suffered from bilateral hydrops of the knees. He complained only of stiffness in the knee-joints. Apart from very slight "sabre-blade" tibiae there was no evidence of congenital syphilis. Wassermann reaction positive. Father's Wassermann reaction positive; mother's stated to be "suspicious."

J. ALLAN.

Late hepatic congenital syphilis with nephritis ('*La Pediatria*,' 1920, xxviii, p. 1142).—**R. Spano** reports the case of a boy, aged 9 years, with a positive Wassermann reaction and albuminuria (6-7 per mille). The diagnosis was made of chronic nephritis secondary to influenza, and in view of the increasing size of the abdomen paracentesis was performed, 4000 c.c. slightly turbid yellow fluid being removed, containing 2 per mille albumin and a few leucocytes. The fluid reaccumulated rapidly, and after a second paracentesis the liver was found enlarged and bossy and the spleen enlarged. Mercurial inunctions were given, during which the albumin increased to 16 per mille, with diminution in the quantity of urine, which showed a sediment rich in pathological renal elements. Subsequently a marked improvement took place, the ascites and enlargement of the liver and spleen diminished, but signs of renal lesion persisted. The author considers the case one of late hepatic cirrhosis with chronic interstitial syphilitic nephritis.

VINCENT DICKINSON.

The evolution of acute nephritis in hereditary syphilis ('*Gaz. des Hôp.*,' 1920, xciii, p. 1016).—**J. Queslier** records the results of 101 cases of hereditary syphilis. In 67 autopsies of infants under 2 years there were 29 cases of pure interstitial nephritis, 10 mixed and 7 parenchymatous. In 18 cases between 2 and 23 years there were 11 sclerotic kidneys and 7 mixed varieties. The gross appearances may seem normal, but the microscope reveals sclerosis, either general or in patches. The arterioles are often partly or completely obliterated not only in the kidneys, but also in the liver, lungs and spleen. Atheroma of the great vessels may also be found in the aorta or cerebral vessels in children of 4 to 6 years old. Symptoms have either been absent, or been those of acute parenchymatous nephritis; the child has most often succumbed to specific lesions of the

liver or lungs, or to some acute infection, no symptom drawing attention to the state of the kidney. Sometimes there is œdema and albuminuria with blood and cellular casts in the urine. In children over 2 years the cases are more rare, and the condition is often latent, and terminated by uræmic seizures or gastro-intestinal troubles. Œdema is rare; there may be cardiac hypertrophy, high blood-tension, atheroma of the larger vessels. These children bear toxic infections badly, and an acute nephritis may easily be set up and prove fatal. The writer points out that hereditary syphilis leaves the kidney in a state of weakness, so that a slight infection provokes renal complication and renders its cure more difficult.

J. PORTER PARKINSON.

Intestinal hæmorrhage of syphilitic origin in an infant aged 2 months (*Le Nourrisson*, 1921, ix, p. 104).—H. Lemaire, G. Blechmann and R. Turquetty record a fatal case in a male infant who had vomited almost all its feeds since birth. The day before death several hæmorrhagic stools were passed. The Wassermann reaction was strongly positive and the tuberculin cuti-reaction negative. At the necropsy multiple superficial ulcers were found in the ileum and jejunum and patches of suffusion of blood on both surfaces of the intestine, with slight hyperplasia of the intestinal wall in this position. None of these lesions was situated on a Peyer's patch, and there was no hypertrophy of the follicles. Histological examination showed a hæmorrhagic necrosis due to capillary thrombosis. The case differs only in the age of the patient from the cases of intestinal hæmorrhage occurring in newborn syphilitic infants, of which several cases have been recorded.

J. D. ROLLESTON.

Case of syphilitic meningitis in a tuberculous subject (*La Pediatria*, 1920, xxviii, p. 1138).—M. Mallardi describes the case of a girl, aged 7 years, who had continued fever and symptoms of meningitis. Spleen just palpable. Areas of dulness and feeble air entry in thorax. Wassermann reaction intensely positive. Von Pirquet reaction strongly positive. Lumbar puncture drew off 100 c.c. of hæmorrhagic liquid under high pressure with normal albumin content. No thread formation and nothing noteworthy on microscopical examination. A second lumbar puncture twelve days later drew off 30 c.c. clear fluid with thread formation; increase of lymphocytes, but no tubercle bacilli. Intravenous injections of neosalvarsan resulted in complete cure.

VINCENT DICKINSON.

Syphilis and lactation (*Arch. Lat.-Amer. de Ped.*, 1920, xiv, p. 241).—M. A. Ugón states that of 1032 wet nurses that have been employed in Prof. Morquio's service for foundlings at Montevideo only 4 have been contaminated by heredo-syphilitic infants. He records the histories of 3 cases, in each of which there were multiple mammary characters—2 in the first case, 9 in the second, and 12 in the third. The chancres appeared successively with a few days' interval between each. In one case the nurse subsequently infected another child, who in turn infected another nurse. The site of election of the chancre is generally the base of the nipple; less frequently the chancre is situated on the nipple itself or on the areola.

J. D. ROLLESTON.

Treatment of syphilis in infancy and childhood (*Brit. Med. Journ.*, 1920, ii, pp. 197, 3110).—L. Findlay quotes Williams, of Baltimore,

who states that syphilis causes 20 out of every 1000 pregnancies to terminate in stillbirth. In Scotland 4000 persons die annually from syphilis, and 75 per cent. of these deaths occur in children and infants under 5. Mercury should be combined with salvarsan, for with mercury alone 71 per cent. of the cases under 3 months of age died, whereas in cases treated with mercury combined with salvarsan the mortality was only 25 per cent. Mercury should always be given in the form of ointment. Intravenous injections into the veins of the scalp of concentrated solutions of 0.05 to 0.1 grm. in 3 or 4 c.c. of distilled water or saline are recommended, the child being rolled in a blanket, the head tightly held by an assistant, who at the same time presses on the chest and compresses the vein in the scalp. Injection into the longitudinal sinus is not recommended, as irritation of the cerebral convolutions may ensue and meningitis. For children over two the external jugular or the elbow veins should be tried and a general anæsthetic given. A positive was converted into a negative Wassermann reaction in 100 per cent. of the cases receiving 11 injections. The older the child the less easily is a negative reaction obtained. As a prophylactic measure 10 syphilitic pregnant women were treated by salvarsan reinforced by mercury, 4 and 8 injections of the former and in amount varying from 1.2 to 3.6 grm. being given. Not only was the child born healthy, but the women continued to bear healthy non-syphilitic children although no further treatment was adopted. The author concludes by advocating compulsory notification of venereal diseases and alludes to its success in America, and the gross inconsistency of notifying gonorrhœal ophthalmia and omitting blindness due to syphilis.

CHRISTOPHER ROLLESTON.

Reviews.

THE CLINICAL STUDY AND TREATMENT OF SICK CHILDREN. By JOHN THOMSON, M.D., F.R.C.P. Edin. Third edition. Pp. 877. Edinburgh: Oliver & Boyd, 1920. Price 32s. 6d.

It is a good many years since Dr. John Thomson began to give the medical profession the results of his clinical studies of various forms of disease in early life. In this book he has summed up his life's work and observation, and he is apparently still observing and working as earnestly as ever. The book appears to have been a labour of love for him, and it will certainly prove a great boon to students and practitioners. The author has adhered very closely to the lines he has laid down. He has said little about pathology, but has "dealt very fully with clinical methods, clinical symptoms and clinical descriptions of those diseases which are either peculiar to children or show characteristic differences when they occur in early life." Everyone knows how difficult it is to get a useful description of symptoms from children, and in the case of babies it is impossible. Dr. Thomson has concentrated his attention on the outward manifestations of disease, and shows how much can be learned from the observation of the facies, movements, cry, etc. In so far as the information can be conveyed by written descriptions he conveys it. His account of certain diseases, such as various

types of mental deficiency, *Bacillus coli* infection, congenital hypertrophy of the pylorus and congenital laryngeal stridor, deals with subjects he has made peculiarly his own. They almost form a group by themselves which might be called "Thomson's diseases" if we were to try to express what the profession owes him in this connection. The views of other writers have been studied closely, and many references to them are given. The author has even been led to give a long summary of the more recent German work on food disorders, which forms a fine contrast to his own teaching in that it is wordy, theoretical, and probably ephemeral. It is the personal note in Dr. Thomson's book which gives it its chief value, and which will ensure for it a very high place amongst the text-books dealing with children's diseases.

G. A. S.

THE DISEASES OF CHILDREN. By the late Sir JAMES F. GOODHART, Bt. M.D., F.R.C.P. Edited by G. F. STILL, M.D., F.R.C.P. Eleventh edition. London: J. & A. Churchill, 1921. Price 32s. net.

SINCE we reviewed the last edition of this text-book in 1914 there has occurred the lamented death of the original author, Sir James Goodhart. In his preface to the present edition Dr. Still writes a sincere appreciation of his late colleague, and recalls the fact that the book first appeared as much as thirty-five years ago.

Although written by two authors, this book has always in a remarkable way presented a personal view of pædiatrics; all the teaching in it has been applied to the touchstone of personal experience. And herein lies the great value of the book. Some there may be who would object to one statement, others to another, but taking the volume as a whole, we would not have it otherwise.

It is not easy to follow alterations in the text of the new edition owing to the fact that, more words being allotted to each page, the page-enumeration has been altered from that of the last edition. The treatment of diabetes by alimentary rest as applied to children is described, and the method is spoken of as one which "gives results which, at any rate temporarily, are surprisingly good." We cannot find any entry in the index of encephalitis lethargica or "epidemic stupor." However, the little quatrain which keeps its place at the commencement of the volume must, we think, ensure the present edition being as up-to-date as previous ones have always been. Some new illustrations have been added.

R. M.

KOMPENDIUM DER KINDERHEILKUNDE MIT BESONDERER BERÜCKSICHTIGUNG DER SÄUGLINGSKRANKHEITEN. By Prof. ALBERT NIEMANN. Pt. 334. Berlin: S. Karger, 1920. Price 18 marks.

THIS book is dedicated by its author to his teacher, Adalbert Czerny, and throughout the teaching of the Czerny school is closely followed. It is possible that it would have been better if the author had limited himself to the age of infancy. All that part which deals with the young child is full, clear and logical. It shows how far the careful clinical study of infants and their varying reactions to different forms of diet has taken us in the attempt to find a logical classification of the disorders of growth, nutrition and digestion. The part played by infection, enteral and parenteral, is clearly defined, and its relation to disturbances of digestion generally made clear. The description of the common catarrhal infections of infancy, nasopharyngitis, bronchitis, otitis media, etc., strikes us as very fresh and convincing, and derived from close and repeated observations. In all this, the German text-book has much to say, and much that is worth saying, that is not said

in the corresponding works of English authors. When, however, the age of infancy is past, it seems to us that the reverse is true. In the description of the common disorders of later childhood, we have here none of those precise clinical pictures and none of the freshness of observation which is to be found in most of our text-books upon diseases of children. Part of this may be due to the need for compression—a need which seems to find expression in the title chosen—more perhaps to the failure to realise the bearing upon pædiatrics of recent advances in general medicine—in cardiology for example. It is the work of a specialist in children's disorders rather than that of a physician with special interest in the diseases of childhood. It seems as though in the two countries the territory is approached from opposite entrances, and that, in each case, the impetus is apt to prove insufficient to reach the furthest point to be travelled.

H. C. C.

DIE BEHANDLUNG SCHWÄCHLICHER KINDER IN ÖFFENTLICHER FÜRSORGE.

By Dr. JULIUS RITTER. Pp. 40. Berlin: S. Karger, 1920. Price 4 marks.

OPEN-AIR education was known to the ancients, and was practised by the Greeks, Romans and Hebrews many hundreds of years ago. In the seventeenth and eighteenth centuries such educational authorities as Locke, Rousseau and Pestalozzi commended this form of education, but it was not till 1876, when Pastor Bion, of Zurich, initiated the holiday colonies in a systematic manner for the under-nourished children of poor parents, that the movement spread rapidly throughout Switzerland and thence over the whole world. In the pamphlet before us Dr. Ritter gives a concise but very lucid account of the physiological principles upon which such open-air treatment is based and the results achieved in the case of under-nourished children predisposed to but not suffering from tuberculosis and nervous troubles, treated in his open-air school in a suburb near Berlin. He also pleads for the establishment of such "preventoria" on a large scale out of public funds. The pamphlet is interestingly and convincingly written, and should appeal to medical officers of health and others interesting themselves in child-welfare work who have a good reading knowledge of German. Its price is stated to be 4 marks. This affords no information whatever regarding the real cost of the book to any English reader who might wish to buy it. We would suggest that German publishers sending their books for review to English journals should, until the rate of exchange becomes stabilised, state the price in English money. If, as we understand, one has to pay for books at the rate of a shilling a mark, we fear that neither this pamphlet nor any of the other books that we have come across recently have much chance of a sale in this country at the present moment.

W. M. F.

MEDICAL NOTES. By SIR THOMAS HORDER, M.D., F.R.C.P., Physician with Charge of Out-Patients to St. Bartholomew's Hospital. Foolscap octavo. Pp. 112. London: Henry Frowde and Hodder & Stoughton, 1921. Price 6s. net.

We have long been indebted to the author for his collection of Dr. Samuel Gee's aphorisms, which first appeared in book form in 1902. Now we have to thank him for the collection of his own 'Medical Notes' (dedicated to the memory of Dr. Gee), many of them written in the style of aphorisms. Let us take as an example No. 13 on p. 64: "Oxygen cannot replace fresh air. For the treatment of pneumonia no amount of oxygen-inhalation is

likely to balance the deleterious effect of shut windows, a gas fire, a crowded room, and the patient's bed in a *cul-de-sac*." On the next page how well he explains that expectant treatment is not "doing nothing" and is not merely a policy of "wait and see"! Dr. Gee indicated the same method in his delightful address on "Sects in Medicine." The whole series in the present volume is concisely but clearly written, useful and suggestive. There is much to commend and perhaps a little to criticise; doubtless in years to come some author will write a learned commentary on these notes and on Dr. Gee's aphorisms, which will be much longer than all that Sir Thomas Horder and Dr. Gee have written put together. On p. 49 the author advises examination of the sputum for tubercle bacilli, however typical of pulmonary tuberculosis the case may seem to be. Similar symptoms may occur in new growth, lymphadenoma or bronchiectasis, but might not the author have added, in tertiary syphilis also? The little book should be widely read, and some practitioners will probably interleave their copies, the sayings having stimulated them to make additions and comments of their own.

F. P. W.

GRAPHIC METHODS IN HEART DISEASE. By JOHN HAY, M.D., F.R.C.P. With an Introduction by Sir JAMES MACKENZIE, F.R.S. Second edition. Pp. 178. London: Henry Frowde and Hodder & Stoughton, 1921. Price 12s. 6d. net.

INSTRUMENTAL aids in diagnosis are rapidly increasing in number. In the region of cardiology the polygraph and the electro-cardiograph have been of great value in elucidating disturbances in the mechanism of the heart-beat, which had not hitherto been recognised by ordinary clinical methods. If it be admitted, as it probably will be, that the student will understand these irregularities better by taking and studying graphic records of such disturbances, the purpose of this book will be approved.

As the author puts it, the practitioner "will gradually find that he becomes less and less dependent on these instruments with which he has served an apprenticeship, for he has educated himself to do without them. His fingers, his eyes and his ears are enough in themselves. He has made an advance as a clinician." We may add that many a prolonged academic discussion at the bedside in former days could have been brought to a prompt and definite conclusion had the polygraph or electro-cardiograph been available for making a graphic record.

It is eleven years since the first edition was published, and much new knowledge has been acquired of such disorders as auricular fibrillation, auricular flutter and paroxysmal tachycardia. The plan of the book is to give a series of tracings, normal and abnormal, and to explain them in such a way that the intelligent practitioner will be able to understand the graphic records which are now so common in medical literature, even if he has not acquired the art of making them for himself. Most of the book is occupied with a series of polygraph tracings, showing the venous and arterial curves, and there is a short section on electro-cardiograph tracings. A preference is shown on these reproductions for white lines on a dark background, but most readers would probably prefer dark lines on a white background. The tracings both in health and disease are clearly interpreted, so that the practitioner is presented with a series of standard records for comparison with any he may make for himself. These records are as suitable for the study of cardiac disturbances and irregularities in childhood as in adult life.

G. A. S.

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